

AWPP  
B88C  
1998

CONSUMER PERSPECTIVES OF PROVIDER  
COMMUNICATION STYLES AND ANTIDEPRESSANTS:  
A STUDY OF BELIEFS AND OUTCOMES

by

DARA CATHERINE BULTMAN

A dissertation submitted in partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy  
(Pharmacy)

at the

UNIVERSITY OF WISCONSIN-MADISON

1998

P

AW  
B88

## ACKNOWLEDGEMENTS

Thank you for the leaping spirit, quest to understand and desire to help. To anyone who ever wondered if they mattered, you do. Thank you Dawn Deda Bultman for this life and the beautiful family you created. Your help in wording the instrument items is greatly appreciated too. I look forward to meeting you again.

This project was possible because of Wisconsin pharmacists, pharmacy workers and pharmacy consumers. Thank you pharmacists and workers for assisting in study enrollment. I especially thank study participants for sharing experiences, thoughts and a little of your life with me. Your contribution to this project is immeasurable. I hope you know how much you have added.

I thank my major professor, mentor and friend, Bonnie Svarstad. Thank you for finding the path, clearing the way, laying new ground and encouraging me to do the same. I thank Jeanine Mount for sharing her wisdom, humor and explanations of social behaviors. The patient enthusiasm you both have shown me is greatly appreciated. Your teachings have influenced me and I feel fortunate to be a student in your program.

Thank you Betty Chewning, Joy Newmann and Joe Weiderholt for consistent inspiration in life and in research. Thank you Mary Hisrick Jenkins for inviting me to run, encouraging me to keep moving and working with this project. Thank you Betsy Sleath, Inger Bjorg Thiedemann Johansen and Ingrid Schmidt for inspiring me with your work, play and ways of seeing. The University of Wisconsin Schools of Pharmacy, Social Work and Sociology are filled with many energetic people who have been helpful to me.

I thank my grandmothers. Vera Haack Bultman, thank you for my dad and for inspiring me to help people be better prescribers, better pharmacists and healthier happier consumers. Kathryn McMillan Deda, thank you, for my mom and, Grandma, thanks for inspiring me to keep trying even when it gets tough.

I am part of a truly amazing family. I thank them for adding so much to my life. You sustain and surprise me. Thank you David Clarence Bultman for sharing your creative and loving ways with me. I hope I have inherited your patience, wisdom and capacity to laugh with life. Your friendship brings immeasurable joy. Thank you David and Lisa Bultman for helpful suggestions and wonderful conversations along the way. I especially appreciated your enthusiasm for SAS. Dan Bultman and Ella Hughes, thank you, for your beautiful works of art, your inspiring knowing ways and your support. Thank you to my sister and comrade in dissertator status, Dana Bultman, and to Javier Zapata. Thanks for the Spanish flavor, humor and help in constructing a sentence. As the aunt of four incredible people, I thank my niece and nephews for adding joy to my life. Thank you Ian Daniel Taki Bultman for playing ball, kick-the-can, and singing songs with me. Thank you Hannah Marilyn Bultman for your zest and spunk. Thank you Guillermo David Zapata Bultman for helping me feel a miracle and Eliot Juan Zapata Bultman for helping me know a miracle. Your photos and pictures are admired often.

My nurturing friends, consumers and coworkers at Community Pharmacy, thank you. You are also my teachers and have helped me practice pharmacy with a focus on communication. The American Foundation for Pharmaceutical Education added financial support during the developmental stages of this project. A special thanks to the Mental Health

Research Center on campus for substantial support while completing this endeavor. Thanks to Wisconsin Pharmacists Association for the list of Dane County Pharmacies.

Thank you Jane James for supplying a safe place for me to wander, face myself and complete this dissertation. Thank you friends for bringing balance to this dissertator's life.

My most special thanks are to Sue. Thank you for encouraging me to grow toward my potential, for a beautiful life, for helping me feel and know the most amazing things. Thank you for helping me feel my anger and argue more fairly too. You are invaluable. I am indebted to you.

As I write this acknowledgement our animals are here with me. Tuxedo is snoring peacefully. Rosie is snuggled on my lap, her paw rests lightly on the paper. Buttons is walking across this page, the last page and sitting on the stack of paper. Who believes writing is solitary work?

## TABLE OF CONTENTS

	Page
Acknowledgements.....	i
List of Tables.....	viii
List of Figures.....	x
List of Appendices.....	xi
Abstract.....	xii
 CHAPTER	
1. CONSUMER PERSPECTIVES OF THE TREATMENT PROCESS: THE NEED FOR THEORY AND RESEARCH.....	1
A. Introduction and Background	1
A. 1 Predictors of Early Treatment Discontinuation	3
A. 2 Consumer-Provider Relationships: Predictors of Early Treatment Discontinuation	5
B. Research Needs	8
C. The Present Study	9
C. 1 The Research Focus	9
C. 2 Purpose of Study	13
C. 3 Scope of Study	14
C. 4 Chapter Preview	15
2. LITERATURE REVIEW.....	18
A. Depression, Antidepressant and Clinical Guidelines	19
B. Early Treatment Discontinuation of Antidepressants	24
C. Antidepressant Treatment Adherence Studies	26
C. 1 Characteristics of the Medication Regimen	26
C. 2 Characteristics of Health Care Providers	29
C. 3 Characteristics of the Consumer	30
C. 4 Summary of Literature	33
C. 5 Focus on Consumer Perceptions of Treatment	36
D. Provider - Patient Relations Related to Outcomes	37
3. CONCEPTUAL FRAMEWORK.....	41
A. Study Context	41
A. 1 Defining Treatment Adherence and Continuation	41
A. 2 Defining Treatment Process	43
A. 3 Consumer Perspective	47

CHAPTER	Page
3. (cont.)	
B. Theoretical Approaches to Treatment Continuation	48
B. 1 The Biomedical Model	48
B. 2 Behavioral Theories	50
B. 3 Cognitive Theories	51
B. 4 Interactional Theories	53
B.4.a. The Self-Regulation Theory	54
B.4.b. The Communications Model	55
B.4.c. The Health Communication Model	56
C. Conceptual Model of Treatment Continuation	61
C. 1 The Study Model	61
C. 2 Study Hypotheses	64
C. 3 Study Variables	65
C.3.a. Provider Approachability	66
C.3.b. Provider as Informant	66
C.3.c. Causes of Depression and Appropriate Treatment	67
C.3.d. Consumer Knowledge	67
C.3.e. Anticipated Value of Antidepressant Treatment	68
C.3.f. Provider Participatory Manner in Problem Solving	68
C.3.g. Provider as Monitor	69
C.3.h. Consumer Evaluation of Antidepressant Use	69
C.3.i. Treatment Continuation and Adherence	70
C.3.j. Depression Symptoms	71
4. STUDY METHODOLOGY.....	74
A. Overview of Study Design and Method	74
B. Sampling Design	77
B. 1 Sample Size and Rationale	79
B. 2 Sampling	82
B. 3 Pharmacy Contact	83
B. 4 Pharmacy Involvement	85
C. Instrument Development	89
C. 1 Telephone Interview	89
C. 2 Prescriber Initial Communication Style	91
C. 3 Pharmacist Initial Communication Style	93
C. 4 Knowledge of Medication Regimen	95
C. 5 Anticipated Value of Antidepressant Medication Treatment	98
C. 6 Prescriber Follow-up Communication Style	100
C. 7 Pharmacist Follow-up Communication Style	103
C. 8 Medication Evaluation	105
C. 9 Depression Symptom Scores	106

CHAPTER	Page
4. (cont.)	
C.10 Background Factors	107
C.11 Antidepressant Medication	108
C.12 Treatment Continuation and Adherence	109
D. Instrument Implementation	110
D. 1 Reliability and Validity	110
D. 2 Interviewing Procedures	111
E. Data Analysis	114
F. Limitations	116
5. INITIAL TREATMENT PROCESS: PRESCRIBER AND PHARMACIST COMMUNICATION STYLE AND ANTICIPATED VALUE OF ANTIDEPRESSANTS.....	120
A. Descriptive Statistics Initial Interview	123
A. 1 Pharmacy Site Characteristics	123
A. 2 Consumer Background Factors	127
A. 3 Consumer Clinical Background Factors	131
A. 4 Prescriber Initial Communication Style	138
A. 5 Pharmacist Initial Communication Style	142
A. 6 Consumer Knowledge of Medication and Regimen	146
A. 7 Anticipated Value of Antidepressants	150
B. Bivariate Analysis Initial Interview	155
C. Multivariate Analysis Initial Interview	162
D. Summary	166
6. FOLLOW-UP TREATMENT PROCESS: PRESCRIBER AND PHARMACIST COMMUNICATION STYLES AND EVALUATION OF ANTIDEPRESSANT USE .....	170
A. Follow-up with Providers	171
A. 1 Consumer Perceptions of Prescriber Follow-up	171
A. 2 Prescriber Follow-up Communication Style	174
A. 3 Consumer Perceptions of Pharmacist Follow-up	178
A. 4 Pharmacist Follow-up Communication Style	181
B. Consumer Evaluation of Antidepressant Use	186
C. Bivariate Results	190
D. Multivariate Analysis	201
E. Summary	208

CHAPTER	Page
7. CONSUMER BEHAVIOR IN TAKING ANTIDEPRESSANTS: MEDICATION OMISSIONS AND FACTORS THAT INFLUENCE.....	213
A. Describing Medication Use	214
A. 1 Consumer Report of Treatment Continuation	214
A. 2 Consumer Report on Medication Use	216
B. Bivariate Analysis	220
C. Multivariate Analysis	225
D. Summary	238
8. HEALTH RELATED OUTCOMES OF ANTIDEPRESSANT TREATMENT.....	241
A. Health Related Outcomes	242
A. 1 Follow-up Depression Symptoms	242
A. 2 Consumer Treatment Goals	247
B. Bivariate Analysis	252
B. 1 Follow-up Depression Scores	252
B. 2 Depression Score Change	256
B. 3 Treatment Goal	258
C. Multivariate Analysis	260
C. 1 Follow-up Depression Scores	261
C. 2 Depression Score Change	262
D. Summary	265
9. SUMMARY AND CONCLUSIONS.....	267
A. Overview of Significant Findings	267
B. Theoretical Contributions and Issues	281
B. 1 Theoretical Contributions	281
B. 2 Theoretical Issues	284
C. Methodological Issues	287
D. Limitations	290
E. Conclusions	297
APPENDIX A	299
APPENDIX B	302
APPENDIX C	312
APPENDIX D	318
APPENDIX E	339
APPENDIX F	341
APPENDIX G	350
BIBLIOGRAPHY	356

List of Tables		Page
TABLE		
1	Overview of compliance models	49
2	Pharmacy site characteristics	124
3	Consumer background factors	128
4	Consumer depression symptoms initial	135
5	Prescriber and pharmacist initial communication styles	139
6	Consumer knowledge of medication regimen, effects and management	147
7	Anticipated value of antidepressant medication	151
8	Correlation coefficients, means, standard deviations for consumer background factors and initial treatment process variables	156
9	Multiple regression equations for consumer background factors and initial treatment process variables predicting consumer anticipated value of antidepressant medication	164
10	Follow-up with prescriber	173
11	Prescriber follow-up communication style	175
12	Follow-up with pharmacist	180
13	Pharmacist follow-up communication style	182
14	Consumer evaluation of antidepressant use	187
15	Correlation coefficients for consumer background factors and treatment process variables initial and follow-up	191
16	Multiple regression equations of background factors and treatment process variables predicting consumer evaluation of antidepressant use	204
17	Multiple regression equations of clinical background factors and treatment process variables predicting consumer evaluation of antidepressant use	206

## List of Tables (continued)

TABLE		Page
18	Consumer self-report antidepressant use	217
19	Correlation coefficients for consumer background factors and treatment process variables and medication omissions	221
20	Multiple regression equations of background factors and treatment process variables predicting medication omissions	227
21	Multiple regression equations of background factors and combined treatment process variables predicting medication omissions	230
22	Multiple regression equations of clinical background factors and treatment process variables predicting medication omissions	234
23	Logistic regression results for predicting medication omissions of antidepressants	237
24	Consumer depression symptoms initial and follow-up	243
25	Change in depression symptoms	246
26	Correlation coefficients for consumer background factors and depression symptoms follow-up, depression change and treatment goal status	253
27	Correlation coefficients for treatment process variables and depression symptoms follow-up, depression change and treatment goal status	254
28	Multiple regression equations of background factors and treatment process variables predicting depression symptoms at follow-up	263
29	Multiple regression equations of background factors and treatment process variables predicting depression change	264

List of Figures

FIGURE

Page

1	The Health Communication Model	57
2	The Proposed Study Model	62

## List of Appendices

## APPENDIX

		Page
A	Methods materials: Sampling procedures	299
B	Methods materials: Recruiting materials	302
C	Methods materials: Updated Recruiting materials	312
D	Methods Materials: Interview Instruments	318
E	Methods Materials: List of Prescription Antidepressants	339
F	Results: Significant differences between consumers from largest enrolling pharmacy and remaining pharmacies	341
G	Results: Frequency distributions of depression symptoms and treatment process variables	350

Consumer Perspectives of  
Provider Communication Styles and Antidepressants:  
A Study of Beliefs and Outcomes

Dara Catherine Bultman

Under the supervision of Professor Bonnie L. Svarstad

At the University of Wisconsin-Madison

This prospective study uses a communication framework, consumer perceptions of physician and pharmacist interactions, and a longitudinal approach to examine treatment process, adherence and clinical outcomes. Consumers receiving antidepressant prescriptions were identified for study enrollment by their community pharmacists. Telephone interviews with consumers were completed twice about medication beliefs, experiences with physicians and pharmacists, and depression symptoms. Interviews with consumers were completed at the beginning of antidepressant use and again two months later.

This design allowed for the collection of consumers' anticipated beliefs of antidepressant treatment value, initial communication by physicians and pharmacists, regimen knowledge, and initial depression symptoms. The follow-up interview allowed for the collection of consumers' evaluation of antidepressant use, follow-up communication with providers, self report of antidepressant use and current depression symptoms. The treatment process factors were used to predict treatment continuation, adherence with daily use and clinical outcomes.

Principal findings of this novel approach: consumers with communicative physicians have positive anticipated beliefs about the antidepressant initially, evaluate the medication as beneficial and continue medication use. Medication adherence is predicted by consumer

evaluation of medication use and prescriber communication style, while controlling consumer background factors, regimen knowledge, anticipated value of antidepressants, and pharmacist communication style. Improvement in clinical outcome is predicted by a communicative prescriber initially and in follow-up and a positive evaluation of antidepressant use. The lack of association between treatment adherence and depression improvement requires closer examination.

This research extends the theoretical framework presented in the Health Communication Model. This dynamic treatment process model includes multiple health care providers and captures consumer beliefs and behaviors at two points in time during the treatment process. Consumer perceptions of physician and pharmacist communication styles influence treatment beliefs and clinical outcomes. Pharmacists are in an optimal position to impact consumer outcomes by monitoring medication use between physician visits. Consumers in the community pharmacy setting are willing to complete telephone interviews concerning their treatment experiences. This study method offers a prototype for studying other health conditions.

## CHAPTER ONE

CONSUMER PERSPECTIVES OF THE TREATMENT PROCESS:  
THE NEED FOR THEORY AND RESEARCH

## A. INTRODUCTION AND BACKGROUND

Part of my stubbornness can be put down to human nature. It is hard for anyone with an illness, chronic or acute, to take medications absolutely as prescribed. I didn't want to take it to begin with .....I still somehow thought that I ought to be able to carry on without drugs, that I ought to be able to continue to do things my own way (Jamison, 1995).

This excerpt taken from a personal account of an international authority on manic depression highlights a theme common to the treatment of depression, that is, nonadherence with antidepressant medication. The rate of early discontinuation and treatment omissions of antidepressants is high. Studies show that approximately one-third of consumers beginning antidepressant treatment stop taking the medication within the first few months of treatment (Lin et. al., 1995; Markowitz et.al., 1985). In addition, consumers tend to omit doses which may compromise treatment outcomes (Katon, et. al., 1995). As can be expected, many individuals discontinue treatment and continue to experience depression.

Nonadherence with antidepressant medication in the beginning stages of treatment is of special concern. Individuals who go to the doctor and discuss their depressive

symptoms are calling out for help. While some consumers find positive antidepressant effects within the first week, daily use for six to eight weeks is required before the medication can be evaluated for effectiveness. In addition, clinical guidelines suggest continued use for at least six months as the minimum when treating depression.

Depression is among the most common clinical problems found in general medical care (Regier, D. A., et. al., 1984; Katon, W. & Roy-Byrne, P. P., 1988). One in twenty Americans develop depression that is serious enough to require medical treatment. Depression is painful and disruptive to the individual, his or her family, friends, associates and colleagues. The economic costs associated with depression have been estimated at over 16 billion dollars per year (Stoudemire, et. al., 1986). This estimate includes costs of treatment and costs due to lost productivity.

Depression can be treated successfully (Regier, D. A., et.al., 1988). One form of treatment is antidepressant medication. An effective treatment plan needs to be relatively problem-free for the consumer. Understanding consumer perspectives will help in providing useful and acceptable treatment.

### A.1 Predictors of Early Treatment Discontinuation

Antidepressant medication use has been studied. A great concern of antidepressant treatment is the extent of treatment discontinuation. Economic and social costs of depression give rise to a desire to improve treatment outcomes. Research has primarily focused on characteristics of the medication regimen, health care providers or consumers. For example, it is generally believed bothersome side effects are the reason consumers stop taking antidepressant medication prior to the end of the prescription. Forgotten doses occur more often when the medication is prescribed to be taken two or more times a day. However, it is also true that many consumers continue to take antidepressants as prescribed despite side effects and frequent daily doses.

Provider characteristics such as age, gender, work experience, and attitudes toward consumers do not explain treatment continuation. However, psychiatrists more than primary care physicians tend to prescribe newer antidepressants resulting in the greater likelihood of their consumers receiving an effective daily dose of an antidepressant and to continue antidepressant medication for more than 30 days (Simon

et.al., 1993).

Consumer characteristics including gender, age, education, income and health status do not consistently explain treatment continuation. Some researchers have found that consumers with more education are more likely to continue taking their medication, however, more recent studies have found no such relationship (Simons et.al., 1984; Katon et.al., 1992). Research on adherence behavior has found variables measuring consumer beliefs about their illness, treatment and health care provider to be better predictors of treatment continuation (Meichenbaum and Turk, 1987).

In fact, research focusing on consumer perspectives with antidepressant medication found that consumers were more likely to continue taking the antidepressant when they had been told more about taking the medication, were asked about prior experience with antidepressants, and talked about things they could do to make their life more pleasant. The best predictor of treatment continuation for more than 3 months was previous antidepressant use (Lin et.al., 1995).

Explaining treatment continuation patterns through the use of independent characteristics of the medication regimen, the consumer, or the health care provider is probably too

simplistic a model. Such work has not substantially explained consumer behavior. Research oriented toward consumer experience and beliefs with antidepressants and the information shared by their providers is a promising focus in our desire to understand treatment continuation with antidepressant medication.

#### A.2 Consumer-Provider Relationships: Predictors of Early Treatment Discontinuation

In health care, the treatment process involves not only the individual characteristics of the consumer, the provider, and medication treatment, but more importantly the interaction of a consumer and a health care provider. In the case of treating depression with an antidepressant medication in the community setting, the treatment process usually involves the interactions of a consumer and a prescriber and a consumer and a pharmacist.

The greatest amount of the treatment process involves the consumer in his or her life. Consumer experience of living with depression, taking an antidepressant medication and fitting this in with usual life factors impacts the treatment process. In addition, related social, material and informational resources of the consumer and providers influence

the treatment process.

The treatment process is dynamic in nature and inherently in progress. It is a collaborative effort between a provider and a consumer. A key element of the treatment process is the development of a consumer-provider relationship. Szasz and Hollender (1956) postulated an active partnership type relationship between provider and patient and referred to it as a mutual participation relationship. Relationships develop with the initial and ongoing interactions of those involved, in the case of prescription drug use, relationships develop between consumer and prescriber and consumer and pharmacist. In addition, the consumer develops a special knowledge and understanding of the antidepressant drug with use.

The treatment process continues until the consumer and the prescriber no longer interact and barring structural reasons, such as individual relocation or insurance limitations, the treatment process ends when the prescriber, the consumer, or both consider it unnecessary.

Treatment end is of little interest when it is initiated by the prescriber because it is assumed that treatment is complete and the consumer is cured. Consumer initiated treatment end or treatment interruption is of concern because

it may suggest that the treatment process has failed to meet consumer needs. Consumers may consider the treatment inappropriate, inadequate, bothersome or unnecessary. The consumer may or may not be fully informed about clinical protocols of medication use. Alternatively, consumer concerns may not have been satisfactorily addressed by the health care providers.

Research focusing on consumer-provider relationships and information shared during consumer-provider interactions as predictors of consumer behavior has made contributions to understanding treatment continuation. A study measuring the number of consumer-physician visits reports that consumers with adequate antidepressant treatment made more physician visits than those with inadequate treatment (Katon et.al., 1992). Consumers receiving information about their antidepressant drug treatment report fewer side effects and were more adherent to the treatment regimen than less informed consumers (Myers and Calvert, 1984). Consumers receiving explicit directions about the need to take antidepressants regularly, information on usual drug side effects, and an explanation of the delayed therapeutic effect of antidepressants are more likely to continue medication treatment (Blacker and Clare, 1987).

These findings suggest that consumer-provider communication can positively influence treatment continuation. Perhaps this relationship occurs because communication increases the likelihood for the prescribing of medication acceptable to the consumer. Alternatively, consumer-provider communication helps the consumer interpret medication effects. Communication may positively influence consumer expectations of the antidepressant treatment plan.

#### B. RESEARCH NEEDS

The complexities of how the consumer-provider relationship influences treatment continuation is not understood. While research has focused on informational messages and their impact on treatment continuation, increased knowledge about the antidepressant alone does not predict antidepressant treatment continuation. Few studies on treatment continuation with antidepressants have explicitly used a theoretical approach of health behavior in framing a research question. Embracing a broader view of the treatment process which incorporates the consumer perspective and the qualities of the consumer-provider relationship will increase our ability to predict treatment continuation behavior.

A theoretical framework focusing on the consumer

perspective and the treatment process is the Health Communication Model (HCM). The HCM incorporates the various types of messages shared between the consumer and the provider and relates them to consumer behavior. The model suggests that consumer behavior is influenced by consumer understanding and recall of the drug regimen and personal motivation to take the medication. Research focused on the consumer perspective of provider messages and antidepressant effects would increase our understanding of the consumer's view of the treatment process and thus increase our ability to predict consumer behavior.

## C. THE PRESENT STUDY

### C.1 The Research Focus

The proposed study examines consumer experiences with the treatment process as a predictor of treatment continuation. Specifically, this research will (1) focus on consumer perceptions because treatment continuation is a consumer behavior and consumer perceptions are the essence of meaning and relevance in the context of their lives; (2) compare perspectives of consumers who continue antidepressant drug treatment and those who do not; and (3) consider the simultaneous influence of several factors using multivariate analysis.

The relationships between consumer evaluation of antidepressant medication use and provider services with treatment continuation will be examined using a theory based model. The proposed model views consumer medication taking behavior as a result of the consumer-provider relationships. Treatment continuation is viewed as an active decisional process which depends on a collaborative working relationship between the health care provider and the consumer. Although it is recognized that many other factors have a role in medication use, it is proposed that the consumer-provider relationship modifies the impact of influencing factors. That is, consumer's perspectives on treatment will change and that providers need to keep abreast of their consumers' beliefs and feelings toward treatment in order to contribute to better treatment outcomes. In the case of antidepressant treatment, a consumer has interactions with a prescriber, usually a physician, and a pharmacist, therefore this research will investigate the consumers' views of his or her prescriber and pharmacist.

Similar to the HCM, the proposed model for antidepressant prescription use incorporates a dynamic view of the treatment process. Medication taking behavior is rarely constant, in the

case of antidepressant use, discontinuation appears to differ in early and late phases of use. It is assumed that patients are influenced by provider communication behavior and styles differently with ongoing treatment. It is hypothesized that as a consumer initiates drug therapy, provider behavior related to approachability and instruction for medication use influence consumer perceptions of antidepressant treatment and initial medication use and that later stages of continuation are influenced to a greater extent by providers' monitoring style and participatory manner which influence the consumer's evaluation of the medication and ultimately treatment continuation.

For the present study, the model of antidepressant prescription use provides a framework where consumer evaluation of medication use and provider services reflect current consumer perceptions toward medication use and will be related to consumer medication taking behavior.

This study adds to the literature in many ways because of its innovative and theory based design, however there are several limitations. The greatest constraint involves the enrollment of study participants. In an effort to protect pharmacy consumer privacy, the human subjects committee

required that pharmacists identify potential study participants and ask them if a researcher could contact them concerning study participation. In practice pharmacists seemed reluctant or too busy to complete this step with every potential study participant so that the researcher resorted to posting signs in the participating pharmacies announcing the study and asking consumers to call for more information. Thus, enrollment was more a product of consumer selection than pharmacist identification.

In addition, the enrollment constraints faced by the researcher because of the human subjects review committee resulted in some interviews occurring well after the consumers had begun taking the antidepressant. In these cases, consumers were asked to think back to the time before taking the antidepressant which could result in poor recall and measurement error.

Limited financial resources reduced the ability to travel and telephone long distances thus study participation was restricted to one Wisconsin county. Study findings are less generalizable because of the enrollment procedures.

Another study limitation involves the interview items used to define study factors. Consumer perceptions of prescriber

and pharmacist communication styles, antidepressant regimen knowledge, anticipatory beliefs about antidepressant use and actual experiences with antidepressants are measured for the first time. While items were constructed with attention to patient care experiences and theoretical form, considerable work is needed in the construction of useful interview items that measure the range of consumer experiences. Study limitations are somewhat reduced in that consumer perceptions of their treatment process are attempted to be measured and related to their treatment behavior and outcomes.

#### C.2 Purpose of Study

This prospective study investigates consumers' views regarding antidepressant medication treatment, the services provided by their health care providers associated with prescribing and dispensing of the antidepressant and the relationship between consumer views and duration of antidepressant medication use. The purpose of the study is to investigate the following questions:

- 1) How do consumers view antidepressant medication treatment initially and after use?
- 2) How do consumers view the prescriber and the pharmacist and the services they provide initially and in follow up visits?

- 3) What are the relationships between consumer views, antidepressant medication use and treatment outcomes?

### C.3 Scope of Study

Data from two telephone interviews with 100 consumers identified as potential study participants by pharmacists from 23 Dane County community pharmacies provide the information on consumer views and medication use. The first interview was conducted shortly after the consumer received an antidepressant prescription from their pharmacist and focused on consumer knowledge of antidepressant use, beliefs concerning their depression and preferred treatment, and the style of care offered by the prescriber and pharmacist in terms of approachability and instruction.

Consumers were interviewed a second time after approximately a two month period. The follow-up interview focused on consumer experiences, positive and negative, with taking the antidepressant medication, and providers' caregiving styles in terms of participatory manner and monitoring behavior.

Consumer views provided the information to create the following indexes and scales for initial and follow-up study variables: 1) prescriber initial communication style; 2)

pharmacist initial communication style; 3) knowledge of medication regimen; 4) anticipated value of antidepressant treatment; 5) prescriber follow-up communication style; 6) pharmacist follow-up communication style; 7) medication evaluation after use; 8) depression symptoms initial and follow-up and 9) medication omissions and treatment continuation.

#### C.4 Chapter Preview

Chapter Two reviews the literature on treatment continuation emphasizing factors associated with medication use and specifically antidepressant use. Theories predicting consumer behavior as it relates to treatment continuation will be reviewed. Methods and perspectives of previous studies will be reviewed.

The conceptual framework guiding the current project is presented in Chapter Three. Theoretical models of the treatment process and treatment continuation will be described. The proposed model testing study hypotheses is presented.

Chapter Four presents the study methodology. This chapter explains the study plan, how the data was collected, and how key variables were created and evaluated for use in the data analysis.

Chapter Five presents a description of the study sample beginning with details of consumer enrollment through community pharmacies. Study participants are described by background factors including gender, age, education, household income, whether or not antidepressants have been taken previously, initial depression symptoms experienced prior to medication use and antidepressant medication prescribed. In addition, initial data on consumer perceptions of their providers' communication styles, knowledge of medication use and anticipated value of antidepressant treatment are presented. Correlations between consumer background factors and treatment process variables are discussed. Predictors of a positive anticipated value of antidepressant treatment are presented with results from multiple regression analysis.

Chapter Six presents data on consumer perceptions of prescriber and pharmacist follow-up communication styles and evaluation of antidepressant use. Predictors of a positive evaluation of antidepressant use are presented.

Chapter Seven describes treatment continuation and adherence with antidepressants for the study sample. Correlations between background factors, treatment process variables and treatment adherence are discussed. Predictors of

treatment adherence are presented with multiple linear regression analysis.

Chapter Eight describes treatment outcomes. Consumer treatment goals and depression symptoms at follow-up are described and analyzed in relation to study variables.

Chapter Nine draws together study results and discusses findings in relation to existing theory and research. Implications for professional practice will be made.

## CHAPTER TWO

## LITERATURE REVIEW

Before beginning research in the field, a review of previous work in the substantive area is essential. The literature on medication compliance and adherence is massive. This chapter narrows that literature by focusing on research completed on treatment continuation with antidepressant medication. A brief section on provider - patient relations and treatment outcomes follows that discussion.

Consumer treatment continuation rates with antidepressant medications measured in clinical trials and general health care settings are presented. In addition, study findings from empirical research are presented. Factors that appear to influence treatment continuation are identified from the literature. The review focuses on predictors of consumer behavior.

A brief discussion of the clinical definition of depression, the medications commonly used in the treatment of depression and the general clinical guidelines for successful medication treatment are presented. In addition, problems faced in assessing treatment continuation are discussed. Suggestions from the literature review lead us to the

methodological approach directing the current study.

#### A. DEPRESSION, ANTIDEPRESSANTS AND CLINICAL GUIDELINES

Depression describes a syndrome involving disturbances in physiological, cognitive, behavioral and emotional regulation. Depression is considered a psychiatric illness, a mood disorder, that is not a normal reaction to the difficulties associated with life. Stressful life events often precede the first episode of mood disorders. The severity and persistence of these symptoms are associated with different types of depression. It is commonly believed that major depression results from an interaction of biological and psychosocial factors, such that psychosocial stresses translate into biochemical changes within the brain (Jack, 1991).

The fourth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) recognizes two major mood disorders and a number of syndromes related to depression (American Psychiatric Association, 1994). The major mood disorders are major depressive disorder and bipolar I disorder. Additional and less severe mood disorders include dysthymic disorder, cyclothymic disorder, minor depressive disorder, recurrent brief depressive disorder, premenstrual dysphoric disorder, and bipolar II disorder. The critical pathology in those disorders

is one of mood, the sustained internal emotional state of a person (Kaplan and Sadock, 1996). Patients afflicted with only depressive episodes have major depressive disorder or a less severe unipolar depression. Patients who experience both manic and depressive episodes have bipolar or cyclothymic disorder depending on the severity of the symptoms (American Psychiatric Association, 1994).

Depression causes social impairment and marked distress to the consumer (Wells, et. al., 1989). Individuals describe depression as one of agonizing emotional pain. The criteria for major depressive episode listed in DSM-IV indicates five (or more) of the following symptoms have been present during the same two week period and represent a change from previous functioning; at least one of the first two symptoms must be present: 1) depressed mood most of the day, nearly every day; 2) markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day; 3) significant weight loss when not dieting or weight gain or decrease or increase in appetite nearly every day; 4) insomnia or hypersomnia nearly every day; 5) psychomotor agitation or retardation nearly every day; 6) fatigue or loss of energy nearly every day; 7) feelings of worthlessness or excessive or

inappropriate guilt nearly every day; 8) diminished ability to think or concentrate, or indecisiveness, nearly every day; and 9) recurrent thoughts of death or recurrent suicidal ideation.

Depressive disorders are among the most common diagnoses made in general medical care. Lifetime prevalence is about fifteen percent, perhaps as high as twenty-five percent for women (Kaplan and Sadock, 1996). The reasons for the gender differences observed in depression are hypothesized to involve hormonal differences, the effects of childbirth, differing psychosocial stressors and effects of learned helplessness. Depression occurs in all ages, the mean age of onset is forty years and thirty years for bipolar disorders. Prevalence does not differ by race however, clinicians tend to under diagnose mood disorders in consumers who have different cultural backgrounds from their own. Differences in prevalence of depression are not clearly understood with regard to socioeconomic considerations. Depression may be more common in rural areas. Depression occurs more frequently in persons who do not have close interpersonal relationships or a spiritual presence in their life.

Most individuals experiencing depression and able to obtain treatment, receive treatment by their primary care

physician in an outpatient setting (Narrow et.al., 1993). Individuals with depression may visit their primary care physician with health concerns such as sleeplessness, nervousness or chronic pain and receive therapy for these problems while their depression goes unrecognized and untreated. Social stigma concerning depression and psychiatric illness impinge upon and inhibit treatment. Despite increased public awareness, social stigma and messages directing people to have positive outlooks on life prevent individuals from seeking care. This results in continued emotional suffering and loss of daily life joys.

Recent programs directed toward the recognition and treatment of depression have successfully targeted general medical practitioners so that treatment in primary care with antidepressant medication has increased. In 1994, 17 million of the 1.7 billion prescriptions dispensed in community pharmacies were for antidepressant medications (Drug Topics April 1995). In 1995, total prescriptions dispensed in community pharmacies rose to 2.1 billion. Selective serotonin reuptake inhibitors accounted for 40,133,000 of the prescriptions, almost a 30 percent gain in number dispensed (Drug Topics April 1996). In 1996, Prozac, Zoloft and Paxil

were among the top 25 drugs dispensed (Drug Topics April 1997).

Antidepressant medication has been available since the late 1950s with the introduction of Monoamine Oxidase Inhibitors (MAOIs). This class of antidepressants is rarely used now because of the potentially life-threatening nature of a hypertensive crisis that may occur with certain food or drug combinations. More often, medications from the tricyclic (amitriptyline), tetracyclic (nortriptyline), triazolopyridines (trazodone), aminoketones (bupropion), and Selective Serotonin Reuptake Inhibitors (fluoxetine) classes are now prescribed.

All antidepressants require at least three to four weeks of use to show significant therapeutic effects. Medication treatment usually improves symptoms of sleep and appetite disturbances first, followed by anxiety, agitation, mood disturbances and feelings of hopelessness. The last symptoms to improve are low energy, poor concentration, reduced libido and feelings of helplessness (Kaplan and Sadock, 1996). Six to eight weeks of continuous daily use is required before treatment can be evaluated for effectiveness.

Clinical guidelines indicate treatment of depression should be maintained for at least six months or the length of a previous episode, whichever is greater. The most common

clinical mistake leading to an unsuccessful trial of an antidepressant medication is the use of too low a dosage for too short a time. Unless adverse effects prevent it, the antidepressant dose should be raised to the maximum level and maintained for at least four weeks before a medication trial can be considered unsuccessful.

#### B. EARLY TREATMENT DISCONTINUATION OF ANTIDEPRESSANTS

Studies of antidepressant medication use show that individuals frequently take their antidepressant in a manner inconsistent with clinical guidelines. Early discontinuation of antidepressant medication therapy occurs in treatment delivered through clinical drug trials, treatment provided in natural clinical settings and for various antidepressant drug classes. Studies show that 26 percent to 67 percent of individuals initiating antidepressant drug therapy stop taking the medication within three months time (Markowitz et.al., 1985; Weismann et.al., 1979). Lin and colleagues (1995) found that 28 percent of patients with newly prescribed antidepressants stopped taking the drug in the first month of therapy and 44 percent of the patients were no longer taking the antidepressant after three months. Rates in the range of 35 to 40 percent are more frequently reported (Pande and

Sayler, 1993; Linden et.al., 1993; Dominguez et.al., 1985; Fawcett et.al., 1989; Agosti et.al., 1988; Wexler et.al., 1992). Linden and colleagues (1993) found that of 3366 consumers treated with fluoxetine by a general practitioner, 37.6 percent of the consumers discontinued treatment prior to the end of the three month observation period.

Studies using prescription data base information also report low rates of antidepressant treatment adherence. Katon and colleagues (1992) report that utilization patterns were not consistent with clinical standard dose requirements necessary for treatment of depression for 124 HMO consumers initiating antidepressant drug treatment. Twelve percent of those individuals prescribed a first generation antidepressant (tetracyclic, triazolopyridines) and 19.3 percent of those taking second generation antidepressants (SSRI) filled and refilled their prescription to equal a six month supply. McCombs and colleagues (1990) examined antidepressant drug utilization patterns using paid claims data from the California Medicaid program. The researchers restricted focus to those patient records where a minimum daily dose for depression was achieved. In a patient population of 2344 with one full year of data for analysis, only 3.5 percent of patient records (81

patients) displayed antidepressant use patterns consistent with successful treatment of major depression disorder (McCombs et.al., 1990).

### C. ANTIDEPRESSANT TREATMENT ADHERENCE STUDIES

Research investigating antidepressant treatment adherence has primarily focused on characteristics of the medication regimen, characteristics of the health care provider and characteristics of the consumer. The literature focusing on antidepressant drug characteristics frequently involves dosing amount, dosing frequency and adverse effects experienced by the consumer. Research on health care provider factors includes provider age, professional degree, work experience, and attitudes toward patients and their potential treatment outcome. Consumer factors such as age, gender, education, income, health status and health history have been reported in the scientific literature.

#### C.1 Characteristics of the Medication Regimen

Medication induced side effects are often reported as influencing antidepressant treatment discontinuation especially in clinical trials. Results reported from antidepressant clinical drug trials suggest that discontinuation rates are related to medication induced side effects experienced during

drug therapy (Mesters et.al., 1993; Moon, 1990; Song et.al., 1993). Research in general medical practice has also related treatment nonadherence to adverse effects experienced with medication use (Johnson, 1981; Lin et.al., 1995). Experience of severe side effects has not been shown to be a significant predictor of treatment discontinuation (Lin et.al., 1995). However, consumers have reported side effect experience as a reason for discontinuing treatment (Simons, et.al., 1984).

Recent developments in antidepressant drug therapy have produced agents with side effect profiles that appear to be more tolerable for the medication user. Treatment continuation rates are higher by consumers treated with newer antidepressant medications when compared to older medications (Agosti et.al., 1988).

Older agents include the monoamine oxidase inhibitors (MAOIs) and the tricyclic antidepressant compounds (TCAs). MAOIs cause orthostatic hypotension and many foods are prohibited when taking MAOIs to avoid potentially fatal hypertensive crisis reactions. The tetracyclic and TCAs cause anticholinergic type adverse effects which include dry mouth, chronic constipation, dizziness and sedation. In addition, TCAs may aggravate existing health conditions involving

glaucoma, heart function and the prostate.

Newer antidepressants, marketed in the mid-1980s to the mid-1990s, include the Selective Serotonin Reuptake Inhibitors: fluoxetine, fluvoxamine, paroxetine, and sertraline. In addition, bupropion, venlafaxine and nefazodone are available and frequently prescribed. Bupropion and the SSRIs have similar side effect profiles including insomnia, restlessness, agitation, nausea, and headache. Bupropion and fluvoxamine may not cause as much sexual dysfunction as the other agents. Venlafaxine and nefazodone have similar side effect profiles to the TCAs including sedation, nausea, dizziness, dry mouth, constipation, weight gain and cardiovascular effects. Paroxetine, while a SSRI, shares some of the TCA type side effects including constipation, antianxiety and sedative type qualities.

Despite more tolerable side effect profiles high rates of treatment discontinuation continue to be reported with use of newer agents. How some consumers tolerate, manage or overcome these adverse experiences has not been studied. It is possible that prescribers are reducing doses to eliminate or reduce the incidence of adverse effects related to medication use. If the doses are not ultimately increased to achieve therapeutic

efficacy consumers may discontinue treatment early for lack of treatment effect.

## C.2 Characteristics of Health Care Providers

Researchers have focused on provider factors in an attempt to better understand antidepressant treatment adherence. Therapists considered to be authoritarian and relatively inexperienced were more likely to precipitate early treatment discontinuation by young male consumers (Beck et.al., 1987). Patients treated by psychiatrists were more likely than those treated in primary care to continue antidepressant medication for more than 30 days and to reach a prescribed daily dose of 100 mg of imipramine or the equivalent. Psychiatrists were more likely to prescribe newer antidepressants and much of the difference between providers regarding drug discontinuation could be explained by drug selection (Simon et.al., 1993).

Providers' expectations for treatment were not different when comparing consumers who continued treatment and those who did not (Simons et.al., 1984). Providers explain consumer nonadherence to treatment protocols with the following three main factors: (1) consumers' experience a complete treatment response, 52.3 percent; (2) adverse drug effects, 10 percent; and (3) insufficient response, 8.3 percent (Linden et.al.,

1993). Providers of psychotherapy were asked a similar question to which somewhat similar responses were offered: (1) environmental constraints, 37 percent; (2) problem resolved, 31 percent; and (3) resistance to treatment, 22 percent.

Therapists are not likely to acknowledge consumers' dislike of treatment as they tend to perceive the therapy process in a positive manner. In a comparison of therapist perceptions and actual clinical data, Pekarik & Finney-Owen (1987) found that therapists: (1) overestimate treatment length; (2) overestimate continuation rates; and (3) attribute consumer dissatisfaction as a reason for discontinuing treatment less frequently than consumers have done. Similar errors in consumer adherence and responsiveness to treatment are likely to occur with prescribers.

### C.3 Characteristics of the Consumer

Consumer variables generally do not predict adherence, no relation has been found between treatment adherence and age, gender, income, employment, self rated health or objective measures of psychological or physical function (Simons et.al., 1984; Katon et.al., 1992). Blackburn and colleagues (1981) found that consumers with less education were more likely to discontinue treatment. More recent studies do not show a

relationship between education and adherence (Simons et.al., 1984; Katon et.al., 1992). Depression severity has been related to variation in treatment adherence. However, findings vary as investigators have found consumers who stop treatment to be more depressed (Blackburn et.al., 1981; Murphy et.al., 1984), less depressed (Last et.al., 1985) and similarly depressed (Rush et.al., 1977; Simons et.al., 1984; Katon et.al., 1992) to those individuals who continue treatment. Various findings like these lead one to question how consumers perceive antidepressant medication treatment and outcomes experienced.

While consumer variables generally do not predict adherence, two exceptions exist (Meichenbaum and Turk, 1987). Patient beliefs about their illness and treatment and the degree of patient satisfaction with both the health care provider and the treatment regimen have been related to treatment continuation. Meichenbaum and Turk have reviewed adherence studies with various medications. They conclude patient beliefs concerning appropriateness of treatment and agreement with prescriber treatment plan predict patient adherence.

Research      ascertaining      consumer      perspectives      on

antidepressant medication treatment is rare. A literature search produced only two studies that included a follow-up with consumers who discontinued antidepressant drug treatment (Lin et.al., 1995; Simons et.al., 1984). Using a follow-up questionnaire, Simons and colleagues (1984) provided consumers with a list of twenty possible reasons for why they had discontinued treatment. Four items rated as at least moderately important in deciding to stop treatment by more than thirty percent of the consumers were: 1) time spent in obtaining treatment; 2) transportation; 3) medication side effects and 4) the idea of taking medication. Items related to the clinic, the research program and the therapist were considered less important as reasons for discontinuing treatment. Consumers' physical and mental health condition were not evaluated so that outcomes were not possible to assess.

In follow-up interviews, Lin and colleagues (1995) found that early treatment adherence, defined as continued use of antidepressants for at least thirty days after filling the initial prescription, was more likely when consumers: 1) received more educational messages about taking the medication; 2) were asked about prior experience with antidepressants and

3) discussed planning pleasant activities with their doctors. The only significant predictor of late adherence, defined as continued use for at least three months, was previous antidepressant use. While experience of severe side effects was related to early and late treatment discontinuation it was not shown to be statistically significant.

Studies on discontinuation of psychotherapy have found other reasons for consumer initiated end to therapy. Responses given include problem improvement, environmental constraints, dissatisfaction with some aspect of treatment, life changes, lack of efficacy, negative expectations about treatment, and insufficient family support (Bowden et.al., 1980; Pekarik and Finney-Owen, 1987; Gunderson et.al., 1989; Hynan, 1990; Pekarik, 1992).

#### C.4 Summary of Literature

Few studies on antidepressant drug use and treatment adherence have explicitly used a theoretical approach in framing a research question. However, underlying perspectives guiding investigations are apparent because of variables studied. Study methods and designs have resulted in a limited ability to predict variance in treatment adherence. These limited results are due to the restrictive view of the

treatment process. That is, previous work focusing on characteristics of the treatment regimen, characteristics of the health care provider and characteristics of the consumer has greatly ignored the qualities of the provider-consumer relationship and consumer perspective that would help in predicting treatment continuation behavior.

Research relating consumer-provider interaction to antidepressant treatment continuation is limited, however interesting relationships have been suggested. Consumers with adequate antidepressant treatment made more physician visits than those with inadequate treatment (Katon et.al., 1992). It is possible that more physician visits improves communication between consumer and provider. In support of the positive influence of increased communication, Myers and Calvert (1984) found that consumers receiving information about their antidepressant drug treatment reported less side effects and were more adherent to the treatment regimen. Similarly, failure to give explicit directions about the need to take antidepressants regularly, failing to describe usual drug side effects, as well as, failing to explain that antidepressants have a delayed therapeutic effect were related to poor compliance with antidepressant treatment (Blacker and Clare,

1987). Chesney (1983) found that treatment continuation was increased when consumer and provider agreed on symptom severity. These findings suggest that provider communication may help consumers in interpreting treatment effects.

When ascertaining consumer explanations for treatment nonadherence, researchers have relied on methods such as a symptom checklist or direct questioning of treatment satisfaction. Findings obtained from these methods are limited in ability to explain differences in treatment adherence. Problems with these methods result from consumer reluctance to report dissatisfaction with treatment and checklists that only include drug related reasons for discontinuation. Clinical experience suggests that nonadherence attributed to practical or external factors often masks deeper motivations (Roback and Smith, 1987). Behavioral patterns are intricate processes that can be better understood with consideration of consumer perspective of the larger treatment process.

Another problematic method for assessing treatment continuation is to ask providers why consumers discontinue or leave therapy. Health care providers tend to believe that consumers do not return to treatment because they have healed successfully. Unfortunately, consumers do not continue

treatment for a variety of reasons and those who continue to suffer with depression need to be better understood.

#### C.5 Focus on Consumer Perceptions of Treatment

In summary, previous work on antidepressant treatment adherence is limited. The work has focused on characteristics of the drug regimen, the consumer or the provider and usually has relied on designs that incorporate single data sources, thus multivariate analysis has not been completed. Few studies have compared consumers who continue and discontinue treatment, nor have researchers asked consumers' perceived effectiveness of their treatment. Studies relating consumer-provider interaction to antidepressant drug treatment adherence is limited. The purpose of the proposed study is to examine the treatment process in a more comprehensive way. Specifically, this research will (1) focus on consumer perceptions because treatment continuation is a consumer behavior and consumer perceptions are the essence of meaning and relevance in the context of their lives; (2) compare perspectives of consumers who continue antidepressant drug treatment and those who do not; and (3) consider the simultaneous influence of several factors using multivariate analysis.

#### D. PROVIDER - PATIENT RELATIONS RELATED TO OUTCOMES

Physician - patient communication has been studied extensively and is an important aspect of health care (Street, 1992). The communication process has been studied in many ways: observation or taping of the encounter, physician report, medical records and patient report. Physician - patient communication also has been examined in relation to treatment outcomes. Significant contributions to this literature include works by Svarstad (1974, 1976, 1985, 1986), Inui, Yourtee & Williamson (1976), Rodin and Janis (1982), Friedman (1982), Ley (1983), Waitzkin (1985, 1993), Roter and Hall (1989, 1992), DiMatteo (1993), and Sleath (1993).

Rodin and Janis (1982) suggest that asking patients for their opinions during the medical encounter increases the patient's feelings of involvement and self-efficacy. The researchers believe that internalization of treatment plans and feelings of greater control result in better adherence to recommendations and improved functional and health status. Similar findings are reported by other researchers in physician - patient relations. Rost, Carter, & Inui (1989) found that physicians can improve their partnership with patients and thus improve medication adherence by allowing patients to offer

their perspective of the problem. Stewart (1984) also found that when physicians ask patients' for their opinion, patients are more compliant with medication.

Joos and Hickam (1990) rigorously reviewed the literature of physician-patient interactions and treatment outcomes. Two studies relating better outcomes to consumer attitudes and physician communication are noted here. Inui, Yourtee and Williamson (1976) studied the hypertension treatment process using concepts from the Health belief Model. The researchers found that consumers with more knowledge combined with more appropriate attitudes toward treatment and their illness condition were more adherent with treatment and had better control of blood pressure. Greenfield and colleagues (1985, 1988) found that better patient outcomes were associated with more information shared between physicians and patients.

Frank and Gunderson (1990) studied the role of provider-patient relations in the treatment of schizophrenia. The researchers report that patients who formed good relationships with their therapists within the first 6 months of treatment were significantly more compliant with psychotherapy and medications. In addition, better patient - therapist relationships were associated with better outcomes after 2

years with less medication. In studies of adherence, patients who are engaged in treatment, satisfied with treatment, and are better informed about their treatment also tend to comply better with medication regimens (Paykel, 1995).

Although the role of pharmacists has changed in the last 30 years, pharmacist - patient interactions have not yet been studied to a great extent. Studies relating pharmacist actions to patient outcomes include works by McKenney and colleagues (1978), Bond & Salinger (1979) and Dorevitch and colleagues (1993). Better patient outcomes are related to improved pharmacist monitoring, increased pharmacist education and educating, and increased pharmacist - patient contact.

McKenney and colleagues (1978) found that pharmacists providing drug therapy monitoring and patient education to consumers with high blood pressure significantly impacted treatment outcomes. Patients in the study group were more compliant with antihypertensive medication and had better blood pressure control than patients in the control group.

In a study relating pharmacist care to patient outcome, careful monitoring and interviewing of patients with schizophrenia over a 10-year period resulted in successful treatment (Dorevitch, Aronzon & Zilberman, 1993). Decreased

rates of rehospitalization, shorter hospital stays, lower neuroleptic dosages, fewer medication -related side-effects and improved compliance compared to the 10-year period prior to the expanded pharmacist role. The pharmacist interviewed and discussed treatment progress monthly with patients. Patients were called and asked to come in for evaluations if they failed to keep their appointments.

## CHAPTER THREE

## CONCEPTUAL FRAMEWORK

Research develops with a philosophical and theoretical approach. Awareness of focus enhances the assessment of project findings. Perspectives and theoretical models guiding this research are defined and examined in the chapter. A context is presented to clarify the underpinnings of this research. Four theoretical approaches to observing and predicting treatment continuation are discussed.

The researcher's preferred perspective is introduced as she makes a case for the research model and set of variables chosen for study. Study variables are defined clarifying the contribution each makes in the understanding of the treatment process. Consumer behavioral measures of treatment adherence and continuation are defined and described.

## A. STUDY CONTEXT

A.1 Defining Treatment Adherence and Continuation

Many terms define the extent to which a person's behavior (e.g., taking medications, following a diet, or an exercise program) coincides with medical or health advice (Haynes, Taylor and Sackett, 1979). Terms such as compliance, adherence, alliance, concordance, conformance and continuation

are referred to in the literature. The terms are not considered interchangeable because of implications and connotations assigned to consumer behavior. For example, consumer behavior is viewed negatively by referring to the consumer as being a noncomplier, uncooperative or a chronic defaulter. These terms view consumers as passively yielding to provider pressure, failing to follow medical advice, or unable to follow medical advice.

While the implications may be subtle or inconsequential to some, term usage defining a consumer's behavior in following his or her prescriber's advice has become controversial. In fact, semantics may thwart research efforts because a multitude of terms and philosophies now address the extent to which patients follow through with medical recommendations (Falvo, 1994).

The terms used in this study are chosen for multiple reasons. In part, the researcher chose terms used in the literature, such as compliance, adherence and treatment continuation for the sake of continuity. In addition, terms were chosen to reflect the spirit of this research. For example, consumers are viewed as active participants in their health care. As active participants, consumers are considered

knowledgeable and essential decision-makers in their personal treatment plan.

#### A.2 Defining Treatment Process

In health care, the treatment process involves the interaction of a consumer and a health care provider in a clinic environment. Each individual brings their personal characteristics. In addition, the consumer brings his or her illness experience and the practitioner brings a treatment philosophy. A treatment plan is introduced. Svarstad and Mount (1992) have presented a similar treatment process model of nursing home care, incorporating the interaction of individuals and the environment.

The psychotherapeutic process has been conceptualized similarly by Garfield (1986) as involving the client, the therapist, their interaction, therapeutic procedures, and related external factors. A similar treatment process exists in the case of treating depression with an antidepressant medication in the community setting. The process involves the interactions of a consumer and a prescriber, a consumer and a pharmacist, their related social networks and material resources, professional knowledge and skill, and consumer experience of depression and taking medication. Personal and

background factors of the individuals, the social circumstances and the antidepressant medication contribute to the quality of the consumer-provider interactions and the treatment process.

The treatment process is dynamic in nature and inherently in progress. It is a collaborative effort between a provider and a consumer. A key element of the treatment process is the development of a consumer-provider relationship. Szasz and Hollender (1956) discussed the active partnership between a health care provider and consumer and referred to the interaction as a mutual participation relationship.

Relationships develop with the initial and ongoing interactions of those involved. In the case of prescription medication use, a relationship develops between the consumer and the prescriber during the doctor visit prompting the writing of a prescription. A relationship develops between the consumer and a pharmacist when the consumer enters a pharmacy to obtain the prescription medication. In addition, the consumer develops a special knowledge and understanding of the antidepressant medication with use.

The treatment process continues beyond the face-to-face interactions between the provider and the consumer. The consumer begins taking the medication treatment. The consumer

may possibly follow-up with the prescriber. The consumer may refill the prescription and follow-up with the pharmacist. Barring other circumstances, such as the consumer or the provider relocating to another geographic area or business office or medical insurance limitations, the treatment process ends when the prescriber, the consumer, or both consider it complete.

The optimal end to the treatment process would be that both the prescriber and the consumer felt treatment was complete and that treatment goals had been accomplished. In fact, treatment end is of little interest when the prescriber as well as the consumer determine treatment complete. In this case, the consumer's condition is cured or at least improved and under control.

Consumer initiated treatment end could mean that the consumer's condition is improved or cured. It could mean that the consumer's health care needs were satisfied. The consumer may not follow-up with the health care provider because he or she feels better. In fact, this is a common myth believed by many health care providers.

Consumer initiated treatment end or treatment interruption is of interest and potentially a concern. It may suggest that

the treatment process has failed to meet the consumer's needs. The consumer who stops treatment early may consider the treatment inappropriate, inadequate, bothersome or unnecessary. The consumer may or may not be fully informed about clinical protocols of medication use. Alternatively, the consumer's concerns may not have been satisfactorily addressed by his or her health care providers.

This research views the treatment process as a collaborative effort between consumers (patients or clients) and providers (prescribers and pharmacists). The premise of this study stems from the belief in the importance of a good working relationship between providers and consumers. It is believed that productive communication between the health care provider and the consumer is necessary for the treatment process to develop, continue and be successful.

Studies show that good provider-consumer relationships positively impact treatment adherence. The proposed study examines prescriber and pharmacist services as experienced by the consumer as a predictor of treatment continuation with antidepressant medication. Consumer perceptions of provider services related to medication use are viewed as indicators of the consumer-provider relationship that impact treatment

continuation.

### A.3 Consumer Perspective

The consumer is an active participant and decision-maker in the treatment process. His or her beliefs concerning the illness condition and the value of medication treatment ultimately determine continued use of the medication. The consumer's perspective concerning his or her prescriber and pharmacist communication styles also influence treatment continuation because good relationships increase the likelihood for sharing concerns, giving feedback and contacting the provider when needed.

While an outside observer of the prescriber-consumer interactions and the pharmacist-consumer interactions may perceive the communication styles differently, it is most important to understand the consumers' perspective. Understanding the consumers' interpretation of the treatment process will improve predictability of consumer behavior.

The health care provider who emphasizes the consumer's perspectives of problems, goals, needs and expectations will more likely continue to interact with the consumer and build a working relationship. Together, problems can be solved, treatment plans can be made, treatment goals can be set and

attained.

## B. THEORETICAL APPROACHES TO TREATMENT CONTINUATION

Research on consumer adherence with medication use and medical advice has been guided by four major theoretical approaches: 1) a biomedical model; 2) a behavioral model; 3) a cognitive model and 4) an interactional model. The theoretical approaches have risen from various fields of study including medicine, psychology, social psychology and sociology. The various fields of scientific inquiry view individuals and their manner of conducting themselves differently. An overview of the theories is presented in Table One.

An excellent review by Leventhal and Cameron (1987) clearly describes theoretical work in the area of compliance research. The authors discuss contributions and limitations of each theoretical approach. Aspects of their work greatly contributed to the following overview.

### B.1 The Biomedical Model

The biomedical model arises from the field of medicine. This scientific field has traditionally focused on the physical nature of the consumer and the treatment regimen when explaining health behavior.

The biomedical model of compliance views the patient as a

Table 1: Overview of Compliance Models based on Leventhal and Cameron (1987)

Perspective	Theory/Model	Overview	Contribution
Medicine-Biomedical	Biomedical	Focus on patient and regimen characteristics	Reformulations of medications Compliance packaging Characteristics of disease and regimen influence adherence
	Social Learning/ Operant	Focus on behavior and stimuli that change or reinforce behavior	Behavioral strategies in changing lifestyle health risk habits Routine medication use
Psychology-Cognitive	Health Belief Model	Individual behavior determined by logic, clients regard condition as serious, believe they are susceptible, treatment is beneficial and treatment benefits outweigh treatment costs	Predictive of health action through assessment of client perceptions of illness severity and susceptibility and treatment benefit
	Theory of Reasoned Action	Explains behavior of which individual has volitional control; measure behavior intention as function of attitude toward behavior and normative beliefs of others	Predictive ability dependent upon identifying all or most outcomes salient to the target population.
	Self Regulation Model	Individual is active problem solver, relates individual perceptions of current and desired state, ways for changing status and appraisals, includes emotional reactions	Predictive ability dependent on client perspective and assessment of situation
Social Psychology/Sociology-Interactional	Communication Models	Behavior dependent on delivery, reception, comprehension and acceptance of message	Clear, organized, favorable messages increase likelihood for compliance
	Health Communication Model	Comprehends, recalls message Motivated to act because believes health threat and efficacy of treatment	Improves ongoing communication impacts counseling, monitoring and feedback between provider and client allowing provider to keep up with client's changing beliefs and experiences.

passive recipient of the treatment regimen. It is expected that the patient will follow the prescribed directions without question or concerns.

This perspective assumes that a failure to comply with medical decisions is related to the physical state or personality flaw of the consumer or complexity of the treatment regimen. So for example, prescribing a medication with multiple active ingredients will improve compliance by decreasing the number of medications a patient needs to take. Another example of the biomedical approach to predicting behavior is to relate the number of side effects a patient experiences to continued treatment use. Individuals are perceived as passively experiencing the side effect almost as an all or nothing phenomenon, ignoring a persons' ability to weigh costs and benefits of treatment. The biomedical model ignores psychological and situational processes.

## B.2 Behavioral Theories

Theories developed from psychology focus on individual behavior and the mind. The sciences focusing on behavioral theories view individuals as having a capacity for activity. The behavioral perspective focuses on environmental stimuli and how rewards and punishments elicit, shape and reinforce

behavior. Behavioral theories include operant and social learning theories. Behavior is governed by external events such as rewards and punishments that reinforce the initial behavior.

The behavioral perspective assumes that noncompliance occurs because the behavior has not been learned adequately or that the behavior is difficult to complete. In addition, the effectiveness of behavioral approaches are limited to situations in which the required behaviors are routine. In cases of changing life style behaviors, it is not clear whether the outcome or the behavior necessary to achieve the outcome should be rewarded. This approach fails to consider social, cognitive, motivational and emotional processes underlying behavioral change.

### B.3 Cognitive Theories

Cognitive theories have also developed in the field of psychology. These theories suggest that individual mental processes, i.e. logic, determine social behavior. The theories suggest that health behavior is determined by rational thought processes, such that given the appropriate information on health risks and benefits, individuals will modify their actions to preserve their health.

Cognitive theory relates attitudes (behavioral intentions) to behavior. Theoretical models based on cognitive theory include the Health Belief Model (Rosenstock, 1966; Janz and Becker, 1984) and the Theory of Reasoned Action (Fishbein and Ajzen, 1975). The cognitive framework proposes that treatment adherence occurs when: 1) a consumer has sufficient knowledge of benefits and hazards of taking or not taking the prescription and 2) when the consumer and the provider have similar views of the illness.

The Health Belief Model was designed to explain individual health related behavior in preventive actions and illness behavior. It proposes that individuals take action concerning their health when they perceive the illness as threatening and the treatment as beneficial. Specifically, perceived threat is defined as regarding the condition as having serious consequences and a belief that they are susceptible to the illness. Appropriate health behavior is taken when the individual believes the action will be beneficial in reducing serious consequences and they believe the costs of taking action are outweighed by the benefits obtained (Rosenstock, 1985). These concepts are helpful in assessing the consumer's perspective of their condition and treatment.

The Theory of Reasoned Action, developed by Fishbein and Ajzen (1975), suggests that a rational process results in behavioral intentions and behaviors. The model systematically identifies pertinent issues for an individual when making decisions concerning the performance of a specific behavior. Beliefs and evaluations of behavioral outcomes predict attitudes toward the behavior which predict behavioral intentions. The model includes normative beliefs and their influence on subjective norms and ultimately behavioral intention.

A strength of the Reasoned Action model is that it views individuals as motivated to act because of perceived group norms and subjective norms toward a specific action. Unfortunately, the model ignores motivation to not act due to perceived norms for not acting (B. L. Svarstad, personal communication, June 1993). In addition, competing beliefs and attitudes that commonly occur during the treatment process complicate the use of this model in studying treatment continuation.

#### B.4 Interactional Theories

The fields of social psychology and sociology study how individuals are influenced by other individuals and larger

social groups or organizations. Interactional theories have arisen from the fields of social psychology and psychology. Interactional theories emphasize the interrelationships of cognitive, emotional, and behavioral influences on behavior. The models acknowledge the treatment process as ongoing and dynamic. Models within this framework include the Self-Regulation Systems Model (Leventhal, 1984), Communication Models and the Health Communication Model (Svarstad, 1986).

#### B.4.a The Self-Regulation Theory

The Self-Regulation Theory, developed by Leventhal, Zimmerman and Gutmann (1984) views the individual as an active problem-solver whose action serves to close the gap between current status and goal status. The self-regulation model views the patient as actively assessing their situation and therefore someone who attempts to make sense of their illness by constructing a view of the illness threat. The individual understanding of his or her illness largely determines an action plan of coping strategies and techniques for attaining the goal state.

Noncompliance is explained in the self-regulation model as resulting from discrepancies between how the patient and the provider view illness and treatment. In addition, changing

appraisals influence motivations toward specific behaviors. This suggests that as treatment progresses, consumer appraisals change which could impact treatment continuation behavior. The Self-Regulation model offers a thorough and helpful construct for studying treatment continuation, but focuses on the consumer's somatic experience. This research focuses on a wider range of consumer perceptions including beliefs about their treatment and the treatment process.

#### B.4.b The Communications Model

A simple communication model developed by Miller (1972) presents a feedback loop between the speaker and the listener. Communication involves an original message and then feedback between speaker and listener. Communication messages are modified and clarified with the continuous positive and negative feedback between speaker and listener.

The communications model suggests that six steps are necessary for treatment adherence: 1) generation of message; 2) reception of message; 3) comprehending the message; 4) retention of message; 5) belief in the message and 6) complying with the message (McGuire, 1985). Communication theories have addressed the importance of delivering clear, organized messages in order to enhance consumers' understanding and

recall of prescribed directions.

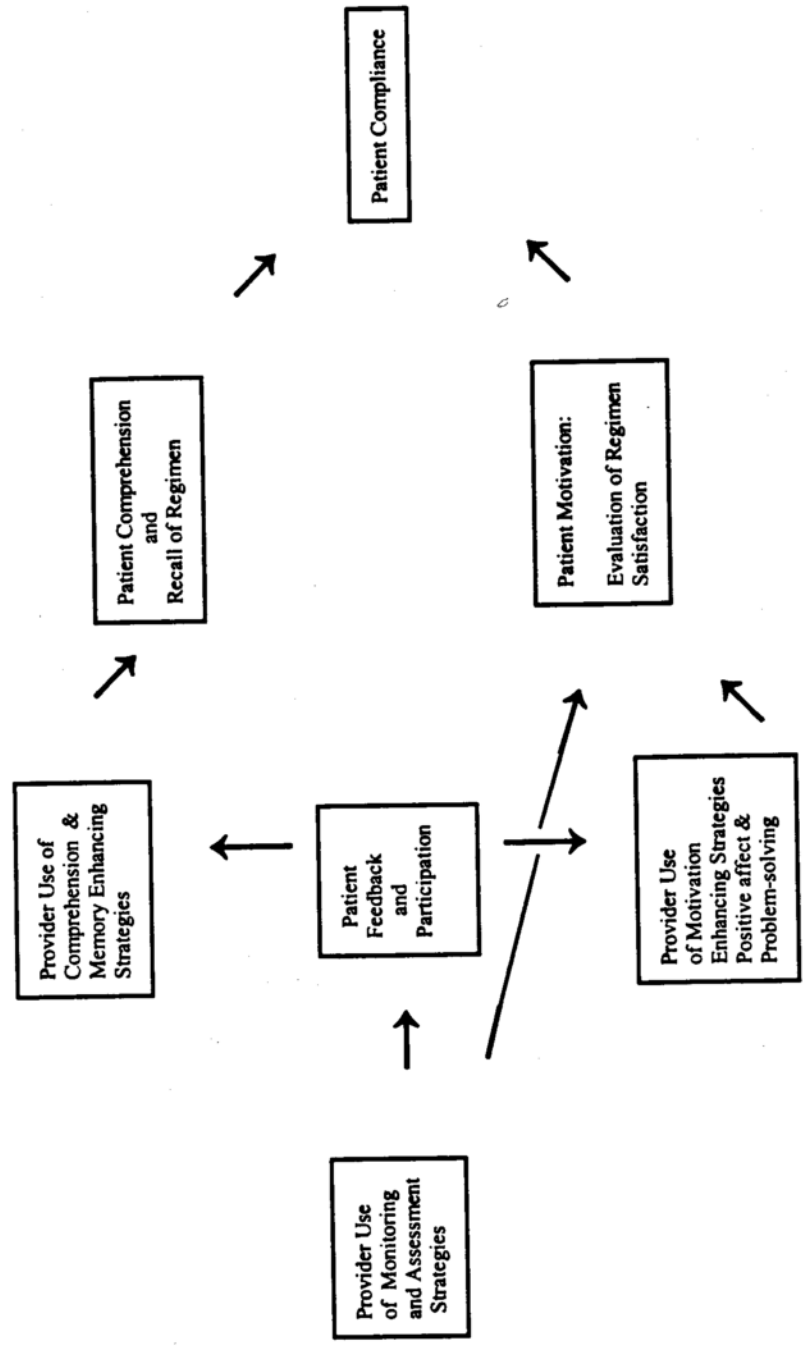
While the first five steps mentioned are essential for treatment adherence, they are not sufficient. Simply informing individuals does not compel them to behave in a specific way. Motivation is a necessary element in attaining a specific behavior.

#### B.4.c The Health Communication Model

The Health Communication Model (Svarstad, 1986) is a theoretical model relating consumer medication taking behavior with provider-consumer communication, refer to Figure One. The model emphasizes consumer comprehension and recall of drug use directions as well as consumer motivation toward drug use as fundamental to treatment adherence. Consumer behavior is influenced by health care providers and modified by effective communication between the providers and the consumer. This social psychological approach suggests that a productive provider-consumer relationship strongly influences consumer perceptions of treatment and largely determines treatment continuation. Thus, treatment adherence is primarily a result of quality communication between the health care provider and the consumer.

The HCM proposes that consumer comprehension and recall of

Figure 1: The Health Communication Model



Inputs: Patient Factors, Regimen Factors, Provider Factors, Environment Factors

the medication regimen can be enhanced by: (1) the provision of explicit directions on how to take the medication; (2) a good understanding of the purpose of medication treatment; (3) supplementation of oral communication with written instructions; (4) consistent advice and (5) the use of multiple strategies. The model proposes that consumer motivation toward medication use is influenced by provider behaviors.

Providers who offer specific communication styles when providing care and interacting with consumers will motivate consumers to continue treatment. The specific motivating communication styles include: (1) positive messages concerning the treatment plan, health status and emphasizing necessity of continued use; (2) positive expectations and directions; (3) an approachable, friendly manner; (4) a participatory approach in problem solving; and (5) follow-up and close monitoring of medication use.

Positive messages by the provider concerning the potential value of the treatment plan influence the consumer's evaluation of the treatment plan. Example messages include an explanation of how the medication works, how effective it has been for others, and how treatment will be evaluated.

Providers expressing positive expectations and directions

to a consumer increase treatment compliance (Svarstad, 1976). Direction is helpful to the consumer, for example a clear directive about scheduling a follow-up appointment is likely to result in the consumer returning for a follow-up visit.

A friendly, approachable manner enhances communication. Verbal and nonverbal cues conveying friendliness, empathy, warmth, respect, acceptance and concern increase the likelihood for open communication between consumer and provider. Svarstad (1974) observed that consumers ask more questions and thus enhance communication when treated in a friendly manner by the physician.

Friendly behavior observed included a greeting at the beginning of the visit, a bid farewell at the end, smiling or laughing by the physician, not interrupting the patient and receptiveness to patient feedback. The friendly manner made the providers more approachable.

Provider approachability is an important characteristic to convey at the beginning of the treatment process. According to the HCM, consumers who consider their prescribers to be approachable will more likely follow-up with them and continue treatment.

Providers conveying a participatory approach to health

care welcome consumer concerns and questions. Negative feedback is necessary in order to make treatment changes and improve an individual's treatment plan. A participatory approach allows the provider to adjust the regimen to meet the individual's needs and resolve problems interfering with treatment continuation.

Monitoring and follow-up are important in improving treatment continuation. Through extensive questioning a provider can determine how a consumer takes the medication as well as improve the provider's understanding of consumer concerns.

The Health Communication Model suggests that patient compliance with directions requires comprehension and recall of the regimen as well as motivation to follow it. Health care providers influence treatment adherence by enhancing patient knowledge and acceptance. Providers can give clear instructions, explain why they believe this medication will work and what the patient will experience after the first few doses. Providers can use monitoring strategies to enhance patient feedback so that treatment problems are identified, discussed and dealt with effectively. These patient-doctor interactions will potentially increase treatment adherence by

increasing communication between provider and consumer.

## C. CONCEPTUAL MODEL OF TREATMENT CONTINUATION

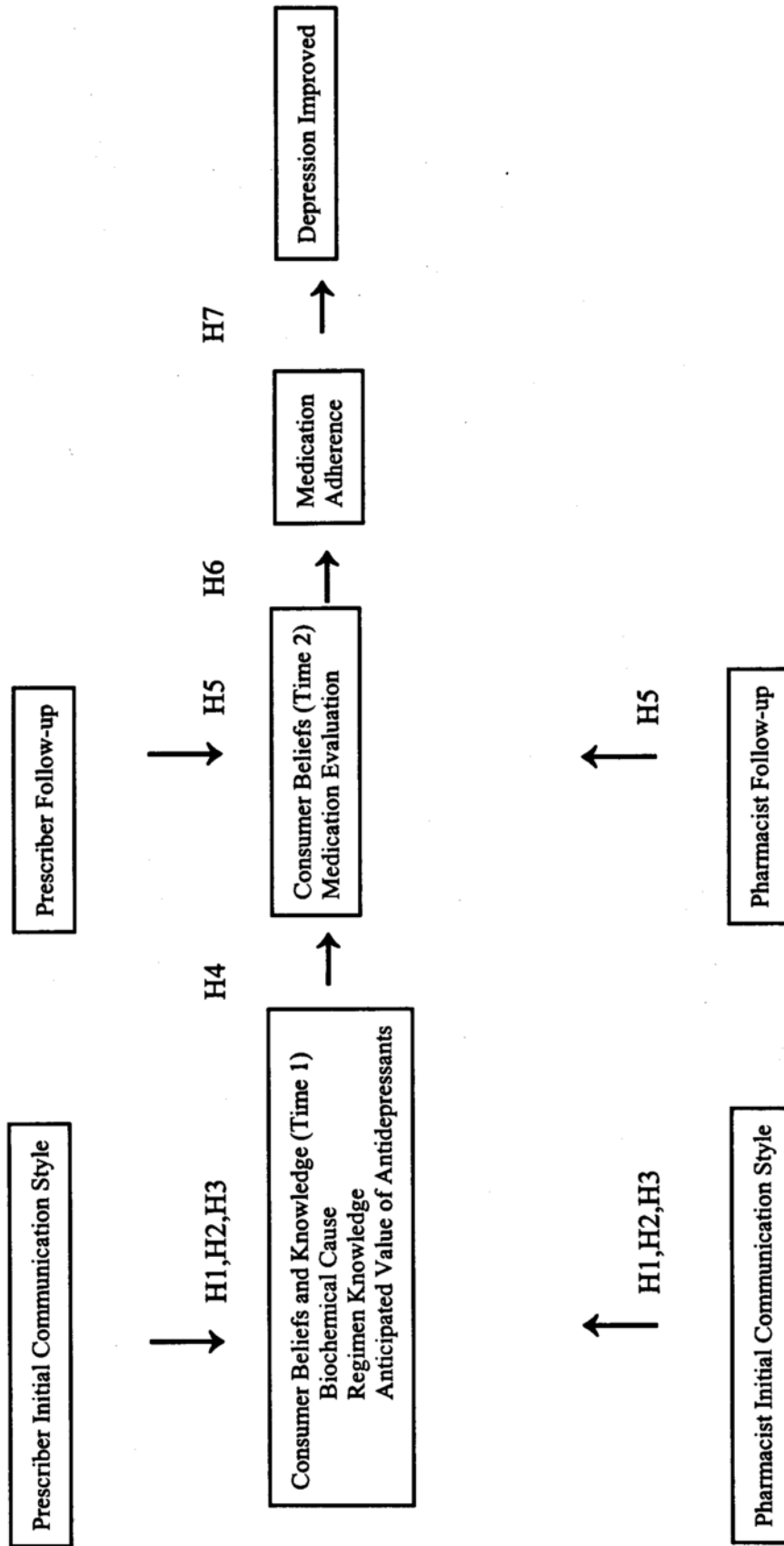
### C.1 The Study Model

The study model is presented in Figure Two. The model builds on previous research supporting the development of the Health Communication Model. The researcher views treatment continuation as an active process dependent on a collaborative working relationship between the health care provider and the consumer. Although it is recognized that many factors play a role in medication use, it is proposed that the consumer-provider relationship modifies the impact of those influencing factors. The proposed model views consumer medication taking behavior as a result of the quality of the consumer-provider relationship and specifically the communications between the consumer and the provider.

Additionally, it is believed that an individual's perspectives concerning medication treatment will change with time and medication use. In order to maintain treatment continuation providers need to keep abreast of their consumers' medication and illness beliefs and feelings toward current treatment (Meichenbaum and Turk, 1987).

The proposed model for antidepressant prescription use

Figure 2: The Proposed Study Model



incorporates the dynamic view of the treatment process. Medication taking behavior is rarely constant, in the case of antidepressant use, discontinuation appears to differ in early and late phases of use. It is assumed that consumer beliefs are influenced by provider communication behavior and styles differently with ongoing treatment. It is hypothesized that as a consumer initiates drug therapy, provider behavior related to approachability and instruction for medication use influence treatment continuation and that later stages of continuation are influenced to a greater extent by providers' monitoring styles. Provider use of a participatory problem-solving style will influence adherence at all stages.

The present study model of antidepressant prescription use provides a framework where consumer evaluation of provider communication styles reflect current consumer perceptions toward medication use. Consumer perceptions of medication are related to medication taking behavior as measured by treatment continuation.

The model assumes that a consumer has background factors that predispose consumers to certain beliefs concerning depression and treatment. Interactions between consumers and health care providers may alter preconceptions. These

background factors include gender, age, education, household income, previous antidepressant medication use, initial depression symptoms experienced and antidepressant medication prescribed. The background factors are controlled in the study.

### C.2. Study Hypotheses

The model proposes that the initial prescriber communication style and the initial pharmacist communication style strongly influence consumer beliefs about the antidepressant medication. The consumer who perceives the provider as approachable and informative will believe in the importance of a biochemical cause of depression [H1], know how to take the antidepressant medication [H2], and will perceive the treatment as valuable [H3].

Consumers perceiving the antidepressant treatment positively are more likely to see the prescriber in a follow-up visit. Consumer medication beliefs at follow-up are likely a product of initial beliefs [H4] as well as related to consumer perceptions of provider communication style at follow-up [H5]. The consumer who perceives the provider as having a participatory manner and closely monitoring the medication use will evaluate medication use positively [H5]. Consumers'

evaluating medication use positively continue medication treatment [H6]. Finally, consumers who adhere to medication regimen will have better clinical outcomes [H7]. The model will be tested in this study through the examination of the following hypotheses:

- H1 Consumer belief in importance of biochemical cause of depression increases with consumer evaluation of provider(s) as being approachable and informative
- H2 Consumer knowledge of treatment regimen increases with consumer evaluation of provider(s) as being approachable and informative
- H3 Consumer positive anticipated value of antidepressant treatment increases with consumer evaluation of provider as being approachable and informative
- H4 Consumer medication beliefs at Time 2 are partially a product of beliefs at Time 1
- H5 Consumer medication beliefs at Time 2 are more positive when the consumer evaluates the provider(s) as using participatory problem-solving manner and closely monitoring their medication use
- H6 Treatment continuation/adherence increases with consumer's positive evaluation of medication use
- H7 Treatment outcomes improve with treatment continuation/adherence.

### C.3. Study Variables

Testing the proposed model requires defining the following concepts: provider approachability and informative manner,

causes of depression and appropriate treatment, knowledge about medication use, anticipated value of antidepressant medication treatment, provider monitoring behavior and participatory manner, evaluation of medication use, treatment continuation and depression symptoms.

#### C.3.a Provider Approachability

Providers acting in a friendly manner seem accessible, easier to confide in and more likely to respond to questions. Svarstad (1974) found that when providers did not interrupt patients and were receptive to feedback, patients asked more questions and communication was enhanced.

In the present study, approachability is measured by asking consumers about provider friendliness during the initial visits. In addition, the extent to which providers asked if there were questions, listened to concerns and helped with concerns will be assessed.

#### C.3.b Provider as Informant

Essential to treatment continuation is consumer comprehension and recall of the prescribed regimen. Consumers need information concerning medication use. Providers who deliver clear organized information about the medication prescribed help consumers to take the medication effectively

and clarify possible misunderstandings. Interview items are necessary to ascertain whether or not prescribers and pharmacists were informative about the medication regimen. Consumers will be asked the extent to which the providers gave clear instructions on how to take the antidepressant and how the medication would effect them.

#### C.3.c Causes of depression and appropriate treatment

A consumer may be motivated to continue medication use if he or she believes the treatment will help the condition. Consumers believing their depression is caused by biochemical reasons would be more motivated to take the medication treatment because it would more likely be effective than if their depression was caused by situational factors alone. Consumers will be asked the importance of various causes of their depression.

#### C.3.d Consumer Knowledge

Educating consumers about the use of their medication positively influences compliance behavior (Svarstad, 1974; Myers and Calvert, 1984; Lin et.al.,1995). For this study, consumer knowledge will be assessed with questions related to explicit directions given for medication use. Study participants will be asked open ended questions concerning

instructions given by their health care provider(s). Sample items include the following: How were you told to take the medication? What were you told about side effects of the medication? When were you told to expect to notice that the antidepressant is working?

#### C.3.e Anticipated Value of Antidepressant Treatment

Consumers who anticipate the positive value of the antidepressant treatment initially may begin the medication and take it as prescribed. Positive beliefs concerning the treatment plan initially may influence initial treatment use. Consumer anticipated value will be assessed with items referring to the usefulness of antidepressant treatment and the extent to which it is a good option for them. In addition, consumers will be asked about concerns with potential side effects, harm from daily use and preference for a different treatment.

#### C.3.f Provider Participatory Manner in Problem Solving

The treatment process is influenced by clinician response to patient feedback. Providers using a participatory approach view feedback as a necessary part of improving the treatment process. A participatory approach allows the clinician to adjust the regimen to meet the individuals' needs and resolve

problems interfering with treatment continuation.

Initially, a participatory manner will be assessed through items relating to the consumer and provider working as a team, planning the treatment together. In follow-up a participatory manner will be assessed through items relating to provider encouragement to express concerns and questions, provider listens to feedback and helps solve problems.

#### C.3.g Provider as Monitor

In the present study, monitoring behavior is measured by asking a series of yes-no questions pertaining to specific prescriber and pharmacist monitoring behaviors. Example statements in the study instrument include: Has (provider) asked how (antidepressant) is working for you? Has (provider) asked how you are taking (antidepressant)? Has (provider) asked if you experienced any side effects?

#### C.3.h Consumer Evaluation of Antidepressant Use

Again, consumers are motivated to continue treatment when they evaluate antidepressant use positively. Consumer evaluation of medication use is an important measure often neglected in the health care literature. In the treatment of depression where the consumer certainly is aware of his or her condition, obtaining consumer evaluation of medication

effectiveness is of great importance when treatment continuation is a goal.

Similarly, evaluating how much the medication bothers the consumer including information about severity of side effects and feelings about taking antidepressants is important in determining the appropriate treatment plan. Effective changes in medication, in dose, in directions can be made only with an understanding of the consumer's perspective of the situation. Consumers will be asked the extent to which they feel better and feel bothered by the antidepressant. In addition treatment satisfaction will be assessed.

#### C.3.i Treatment continuation and adherence

Treatment continuation will be determined by consumer self report of whether or not they are continuing to take the antidepressant daily. Questions from the Brief Medication Questionnaire (BMQ) developed by Svarstad, Chewing and Sleath will be used to determine medication use. Consumers completing the doctor's prescribed regimen or changing to another antidepressant medication will be considered to continue treatment. Consumers who stop taking the antidepressant early, prior to finishing the prescribed plan or interrupt use for a long time period are considered to have discontinued treatment.

Treatment adherence will be measured as dose omissions and extra doses, taken in error and on purpose. The BMQ will ask consumers to recall medication use over the last week and over the treatment period. Consumers will be generally considered to omit, add, or not change prescribed dosing instructions.

#### C.3.j Depression symptoms

Depression symptoms will be assessed initially and again in follow-up in order to assess health related outcome. Depressive symptoms will be assessed using items based on previously tested depression symptom measurement tools and the DSM-IV criteria for Major Depressive Episode (American Psychiatric Association, 1994). The construction of a new depression measure was necessary because the study methodology required a short, self report scale for use during telephone interviews. While existing self-report measures help to identify potentially depressed patients many false-positive results do occur (Depression Guideline Panel, Vol.1). The researchers desired a depression measure that would allow them to calculate whether or not the symptoms experienced by consumers' met the criteria for major depressive disorder according to DSM-IV.

The DSM-IV criteria for major depressive disorder follows:

at least five of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the following symptoms is either (1) depressed mood or (2) loss of interest or pleasure. Symptoms: (1) depressed mood most of the day, nearly every day, as indicated by feeling sad or empty; (2) markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day; (3) significant weight loss when not dieting or weight gain or a decrease or increase in appetite nearly every day; (4) insomnia or hypersomnia nearly every day; (5) psychomotor agitation or retardation nearly every day; (6) fatigue or loss of energy nearly every day; (7) feelings of worthlessness or excessive or inappropriate guilt nearly every day; (8) diminished ability to think or concentrate, or indecisiveness, nearly every day; (9) recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

Four self-report measures commonly used in primary care settings are the Beck Depression Inventory (Beck, et. al., 1961), the Zung Self-Report Depression Scale (Zung, 1965), the Center for Epidemiological Studies Depression Scale (Ensel, 1986) and the General Health Questionnaire which has one

subscale for depression (Depression Guideline Panel, Vol.1). These scales were reviewed prior to creating the current depression measure.

Reviewing the self-report measures helped in developing the item structure and wording. The researchers desired the final measure to include items representing the major components of depressive symptomatology: depressed mood, feelings of guilt, feelings of helplessness and hopelessness, loss of appetite, sleep disturbance, psychomotor retardation and thoughts of suicide. The Beck Depression Inventory or BDI could not be conducted by phone within a reasonable time frame. Each of the 21 categories would require the consumer to hear at least four statement choices prior to selecting the appropriate response statement. The format of the Zung Self-Report Scale (ZSRDS) and the Center for Epidemiological Studies Depression Scale (CES-D) were considered appropriate for telephone use because the answer response for each item was similar.

## CHAPTER FOUR

## STUDY METHODOLOGY

## A. OVERVIEW OF STUDY DESIGN AND METHOD

The research goal is to understand consumer behavior related to the treatment process. The focus is on consumer experience with providers and antidepressant medication. Study participants are individuals initiating antidepressant medication treatment in the ambulatory community setting. This research design is prospective and utilizes a random number start in community pharmacy sampling procedures. Pharmacists from 23 Dane county pharmacies helped identify potential study participants when dispensing new antidepressant medication prescriptions to them. One hundred individuals were enrolled into the study and interviewed about their treatment experience at two points in time.

The research tests a model of treatment continuation that emphasizes consumer beliefs. Beliefs about their providers' initial communication styles, knowledge of and attitudes about antidepressant medication treatment are measured first. Beliefs about provider follow-up communication styles, evaluation of antidepressant medication use and adherence with

prescribed directions are measured 2 months later.

The two interview schedules used when collecting data from study participants were developed from multiple sources. The concepts defining provider communication styles were developed using the Health Communication Model developed by Svarstad (1986). Participants were asked about their prescribers' and pharmacists' approachable and informative behaviors during the initial visit and their participatory manner in problem solving and monitoring behavior during the follow-up visit.

Questions about initial beliefs concerning the cause of their depression, their anticipated value of antidepressant medication treatment, their overall evaluation with taking antidepressant medication and treatment continuation were developed from previous research concerning health behavior. Medication monitoring items were borrowed from the Brief Medication Questionnaire (Chewning & Svarstad, 1991).

A depression symptom scale was developed using items from the Clinical Practice Guidelines for Depression in Primary Care, published by the Agency for Health Care Policy and Research (Depression Guideline Panel, 1995), the Beck Depression Inventory (1965) and criteria for depression diagnosis from the DSM-IV Manual (American Psychiatric

Association, 1994). Initial and follow-up depression symptoms were measured so that treatment outcomes could be assessed.

Participants were enrolled into the study as they initiated antidepressant medication treatment. Enrollment began in November 1995 in community pharmacies throughout Dane County. Consumers were identified by pharmacists and asked permission for a researcher to contact them. Consumers were contacted initially by telephone, then were mailed study materials including consent forms and were interviewed by telephone at the beginning of their medication treatment and again at least two months later in time. Interviews were conducted from November 1995 until July 1996.

The coded data was entered into the computer using SPSS/PC+ (1988) data entry systems and initially prepared for analysis. Additional data preparation and data analysis was completed using SAS Institute Inc. (1995) statistical software.

This chapter begins with a discussion of the sampling design and describes the source and number of participants in the study. Next, the development of the interview schedules and scales used in data collection will be presented. The field procedures followed while collecting participant data are described. Finally, the procedures taken in data cleaning and

analysis are addressed.

#### B. SAMPLING DESIGN

The sampling population is licensed community pharmacies located in Dane County, Wisconsin. For purposes of this study, a community pharmacy is defined as a pharmacy which is not located in a hospital or restricted to mail-order prescription services. The geographic restriction to Dane County was necessary because of resource limitations in travel time, expense and telephoning costs.

A list of all community pharmacies in Dane County was produced in three steps. First, a list of 37 Dane County zip codes was obtained using a current publication of Wisconsin 5-Digit Zip Codes by County (Department of Health and Social Services, 1992, Division of Health Center for Health Statistics). The second step was to enlist the expertise and resources of the Wisconsin Pharmacists Association (WPhA). The researcher requested a list of all pharmacies with the Dane County zip codes from WPhA. A roster of 96 Wisconsin licensed pharmacies (or pharmacy associated businesses) was provided by WPhA. The final step in producing a list was to review and eliminate those businesses that were not community pharmacies. The researchers (DCB and JKM) removed nursing home pharmacies,

hospital pharmacies and pharmacy business offices from the list. The final list held 74 Dane County community pharmacy names and addresses, it included independently owned, chain, HMO and clinic located pharmacies. Appendix A contains the pharmacy sampling materials including zip code list.

In an effort to recruit a study sample of participants representing ambulatory pharmacy consumers initiating antidepressant medication in Dane County, a proportional sampling process was followed. Dane County is made up of rural communities and the state capital. Dane County was divided into two geographic regions: 1) the city of Madison and contiguous zip code areas (Middleton and Sun Prairie) are referred to as central and 2) outlying zip code areas are referred to as periphery. The roster of 74 Dane County community pharmacies was divided into geographic regions resulting in 58 centrally located and sixteen peripherally located pharmacies.

The next step was to determine the proportion of consumers desired from each geographic region. Populations of each area were compared to Dane County as a whole. A current Wisconsin Blue Book was used to determine the populations of Dane County and the separate geographic regions. The total Dane county

population for 1990 was 367,085. The central geographic region was comprised of a population of 219,884 and the peripheral region population was 147,201. According to the populations, 60 percent of the study participants should be enrolled from centrally located pharmacies and 40 percent from peripherally located pharmacies.

#### B.1 Sample Size and rationale

The desired sample size of study participants was determined using Cohen's delta equation. The hypotheses were tested using a 2-tailed test, a significance level ( $\alpha$ ) of 0.05 and power ( $1-\beta$ ) at 0.90. Anticipating a large effect size ( $\delta = 0.8$ ) required each group sample size to be at least 27. The literature on antidepressant medication treatment reports that about 33 percent of individuals discontinue treatment. It was believed the rate would be similar in this study so that a sample size of 100 was desired. Expecting a 33 percent discontinuation would produce a group size of over 27 individuals.

The next step was to determine how many pharmacies would be involved in the study. The decision weighed between having a large enough number of pharmacies to obtain 100 study participants and yet not so large a number that frequent

follow-up contacts would be difficult to complete. The study enrollment is complicated because the researcher is not physically present when potential study participants visit the pharmacies. Achieving enrollment requires active participation by the pharmacists yet they are also busy with their own usual work responsibilities.

In anticipation of pharmacist resistance to help in recruitment, the researchers worked to reduce the efforts needed by the pharmacist. One way of reducing pharmacist workload was to keep the number of participants each pharmacy would be asked to identify low. It was believed, pharmacists would be more willing to participate if asked to enroll three to seven consumers depending on the pharmacy prescription volume.

Another consideration in determining the number of pharmacies in the study was to consider the number the researcher could manage to contact on a regular basis. The nature of the design required that the researcher telephone each pharmacist every few days. Regular phone contact served a number of purposes. First, it allowed the researcher to learn of any potential study participants that had been identified. Pharmacists would report consumers who had an

interest in the study along with a phone number where they could be reached. The second purpose of the frequent phone contact was that it reminded the pharmacists about the study, increased their familiarity with the researcher, allowed the researcher to answer any questions that arose, and allowed the pharmacists to become more comfortable with their new role. The third purpose of the phone call was to talk with additional pharmacists who were less aware of the study protocol, explain the study goals and procedures and encourage their support in identifying consumers for the study. The number of pharmacies enrolled needed to be limited so that aggressive follow-up procedures were possible.

Finally, the researchers decided to enlist twenty pharmacies and ask each to enroll on average five consumers. According to the proportional sampling process 60 percent of the consumers were to be enrolled from the central locations and the remaining from periphery pharmacies. The same proportions were used in determining the numbers of pharmacies from each geographic location. With a goal of at least twenty community pharmacies involved, fifteen of the 58 possible pharmacies from central Dane county and ten of the sixteen possible periphery pharmacies were needed for study enrollment.

At this point, the 1995 Hayes Druggist Directory was referred to for business ratings of the Dane county pharmacies. The directory rates the financial strength of the pharmacies and the researchers (JKM and DCB) correlated those ratings to potential prescription volume in lieu of a better resource. These ratings suggested that the peripheral pharmacies were characterized as having lower prescription volume. It was decided that all sixteen pharmacies would be asked to participate in order to increase the likelihood of achieving 40 percent consumer enrollment from the outlying areas.

#### B.2 Sampling

A systematic random sample utilizing an applied sampling fraction was used to determine the sampling list for pharmacies. A table of random numbers was used to locate the initial sampling point. The number 44 was the starting point so that the 44th listing of the 58 central pharmacies was numbered one then every fourth (58 divided by fifteen approximates four) pharmacy was numbered consecutively until all were numbered. The first fifteen pharmacies were selected for initial contact for study participation. Replacements would be made until a total of fifteen central pharmacies were participating. As stated previously, all sixteen periphery

pharmacies would be contacted for study participation.

### B.3 Pharmacy Contact

Pharmacies were telephoned by the researcher. She asked to speak with the pharmacist and then introduced herself as a pharmacist and a researcher with the University School of Pharmacy. She briefly introduced the research project involving patient experience with their medication. The pharmacist was told that their pharmacy had been selected for potential participation in the study and materials would be sent to the pharmacy for review. A contact pharmacist was determined to whom study materials and future communications would be directed.

Study materials explaining the purpose of the study, what was needed by the pharmacists and the consumers, descriptions of the researchers and a copy of the informed consent for consumers were mailed to the pharmacist for his or her review. After a few days had passed, the researcher visited each pharmacy to explain the study goals, explain why their help was needed, answer any questions and encourage participation. Study procedures were explained to pharmacists agreeing to participate. Pharmacists were given three to seven "study packets" which contained an invitation to participate, an

informed consent form, stamped addressed envelope, information about the researchers, and a journal page. The journal page was a calendar like page sectioned by weeks with blank space for consumers to record his or her experiences with the medication, how they felt, better or worse. Completing and returning the journal was optional. In addition, the pharmacy was given a "log" for quick recording of potential participant information. The log had columns for consumer initials (to maintain confidentiality), telephone number, antidepressant prescribed (so that the researcher could refer to a specific prescription when contacting consumer), date prescription filled, and yes or no response to research contact. Appendix B contains the materials used in study recruitment and enrollment.

Ten of the sixteen periphery pharmacies and fifteen of sixteen central pharmacies agreed to participate. Pharmacists refusing to participate remarked that they were too busy or not interested in research involvement. Most pharmacists were willing to give it a try but were concerned that they would not find individuals that fit the study criteria and were interested in participating.

In two cases, pharmacists referred the researcher to a

pharmacy manager or owner to discuss study participation. In one case, the owner refused participation because the business was changing ownership within a few months and did not want to burden the worker or consumers with a study. However, after the pharmacies changed ownership they were enrolled into the study.

In another case, the pharmacy manager of two centrally located participating sites discussed the study at a group meeting in which pharmacists from sites not yet asked to participate attended. All the pharmacists wanted to participate in the study even those who were from pharmacies numbered 33 and 47 on the original list of 58. Because the pharmacists rotated work sites, working at all four sites every month, and as an effort to retain the two pharmacies already enrolled, the researcher included the additional two sites in the central pharmacy list. This resulted in seventeen central and ten peripheral pharmacies.

#### B.4 Pharmacist Involvement

Pharmacists were asked to identify individuals meeting the following criteria for study enrollment: (1) initiating antidepressant medication treatment (no depression prescription filled in the prior three months); (2) 18 years or older; and

(3) able to understand English. After identifying an individual as meeting the criteria, the pharmacist would then ask the permission to have a researcher contact the individual by telephone about participating in the study. An introductory statement was suggested to the pharmacists to help them, to keep procedures similar across pharmacies and also to encourage the use of non-stigmatizing terms when talking with the individual.

As you read the statement, notice that nothing identifies the person as receiving an antidepressant or treatment for depression. The Human Subjects Committee was quite concerned that consumers would be embarrassed about participating in the study and especially about being asked to consider participation by their pharmacist. To reduce the potential for embarrassment, the researcher suggested the following introductory paragraph be used when talking to the potential study participants: "The University of Wisconsin School of Pharmacy is conducting a study on the medication you have been prescribed. The study is unique because it focuses on patient experiences with their medication. Your participation would involve completing two telephone interviews and allowing researchers to review your pharmacy and medical records. A

researcher would like to contact you and tell you more about the study. May I give your name to the researcher?".

Pharmacists were asked to keep a log of all potential study participants identified. As mentioned previously, the log contained space for the individual's initials, their telephone number, antidepressant prescribed, date of prescription fill and consumer's response to the request that a researcher be allowed to contact them. Unfortunately, few pharmacists actually used the log and typically those who did only recorded the information for consumers interested in receiving more information about the study. A few pharmacists just called the researcher immediately with the individual's name and telephone number. The log was not readily accepted by the pharmacists and needs improvements before using again. For instance, a column for the prescription number would make the log very informative with little effort.

After receiving consumer permission, pharmacists were to notify researchers with consumer information so that contact could be made between the researcher and the consumer. Some pharmacists called the researcher and reported the name and telephone number of potential participants. Other pharmacists waited for the researcher to telephone and request the

information.

Approximately six weeks after the study began, a letter reinforcing the enrollment procedures was sent to each pharmacy in an attempt to increase enrollment. In addition, study procedures were reviewed with pharmacists by telephone. Feedback from pharmacists suggested a reluctance to talk to consumers about the antidepressant study. It became apparent from diverse numbers of enrollment at pharmacy sites that some pharmacies were not identifying potential participants and that only a few pharmacists were comfortable with introducing the study to consumers.

Thus a new technique for study enrollment was employed. The researcher visited each site and personally posted or observed the posting of signs announcing the University of Wisconsin Madison School of Pharmacy Study. The announcement invited individuals starting antidepressant medication to call for information about study participation. It offered participants \$20.00 for their time and effort. Finally, copies of the announcement were printed on four by six inch size cards and delivered to the pharmacies. Pharmacists were asked to dispense the card along with a new antidepressant prescription so that the consumer could consider study participation and

make contact if interested. Appendix C contains the updated recruiting materials.

The announcements and honorarium were well received by pharmacists and consumers. Pharmacists typically remarked they would feel better asking consumers about participation knowing that the consumer would be compensated. Some pharmacists continued to actively help in the enrollment procedure. However, after posting these study announcements many consumers telephoned the researcher and asked to participate in the study. Enrollment continued until 100 consumers were interviewed twice.

## C. INSTRUMENT DEVELOPMENT

### C.1 Telephone Interview

Consumer perspectives were ascertained using two interview instruments. Telephone interviewing was selected as the appropriate method of data collection for this study because the researcher wanted to document consumer beliefs and experiences while being sensitive to the needs of individuals with depression. When comparing telephone interviewing to face to face interviewing, the former method enhances consumer confidentiality and reduces time requirements for traveling to and from the interview site. In the case of a questionnaire as

compared to a telephone interview, the mailed questionnaire would require energy and motivation by the consumer to complete and return in a timely manner. Because our study participants were being treated for depression, self administered questionnaires did not seem appropriate. In order to increase study participation and improve completeness of responses telephone interviews were used.

The interview instruments were designed to collect background factors about the study participants, depression symptoms before and after starting treatment, information regarding consumer experiences with their prescriber and pharmacist during the initial and follow up visits, their initial knowledge about the medication regimen, beliefs about the cause of their condition, initial beliefs about the value of antidepressant medication treatment and actual experience with taking the antidepressant. In addition, consumers were asked about how they usually take the antidepressant.

The interview instruments followed a structured format. Several standard introductions were included to aid the investigator in inquiry. In addition, open-ended questions were included so that the consumer could tell his or her story about their antidepressant treatment process. Scales were

developed for telephone interviews in order to measure the consumer's perspective of their providers' behaviors and the consumer's beliefs and experiences with the antidepressant prescribed for them.

The instruments were pretested with the assistance of two individuals currently taking antidepressant medication. The researcher met with each individual separately in a face to face format and proceeded through the interviews item by item. The goal was to check for wording appropriateness, time required to complete and overall acceptance of questions.

The instruments were pretested for telephone use with a fellow researcher (MHJ) and an individual taking antidepressant medication. The purpose was to familiarize the researcher with the interview procedures and to improve item wording. The goal was to have an interview schedule that could be conducted in a smooth flowing manner so that participants would enjoy the process and share their beliefs and experiences through consistent reliable responses. Appendix D contains interview instruments.

#### C.2 Prescriber Initial Communication Style

A scale to measure the consumers' perspective of their prescriber's initial communication style was developed using

the Health Communication Model. Key elements of a provider's initial behavior were considered to be provider approachability, instruction, and participatory manner. Items describing these characteristics were developed for the initial interview and include:

- 1) (prescriber name) was friendly during the visit;
- 2) asked if you had questions or concerns;
- 3) listened to you;
- 4) helped you with your concerns related to the use of (antidepressant);
- 5) gave you clear instructions on how to take (antidepressant);
- 6) gave you a clear explanation about how (antidepressant) would affect you;
- 7) made decisions about your treatment without your input;
- 8) you and (prescriber) planned your treatment together;
- 9) discussed alternative treatment options with you;
- 10) talked about things that you could do to help you feel better.

Each item was scored on a zero to three point scale where "not at all" described zero, "marginally" described one, "moderately" described two, and "very much" described three.

An item analysis was conducted on the responses of the 100 study participants in order to finalize the prescriber initial

communication style scale. This procedure was completed using SAS statistical programs and running a factor analysis with a scree plot and a correlation analysis. The goal was to have a scale that measured one factor and that the items be highly correlated. Factor analysis for the ten item scale resulted in two factors. Results of the factor patterns suggested using only the first six items for the scale. Factor analysis with a scree plot was conducted on the reduced item list and results suggest one factor accounted for the variance in item responses. The Cronbach alpha of the six-item scale equaled 0.78.

### C.3 Pharmacist Initial Communication Style

A scale to measure the consumers' perspective of their pharmacist's initial communication style was developed using the Health Communication Model. Similar to the prescriber scale, the key elements of a pharmacist's initial behavior were considered to be approachability, instruction, and participatory manner. Nine items of the Prescriber Initial Communication Style scale were used for the Pharmacist Initial Communication Style scale. Item #8 was not considered descriptive of a pharmacist-consumer interaction and therefore was not used in the pharmacist scale. Item #7 was reworded to

appropriately reflect a pharmacist-consumer relationship. The resulting items follow:

- 1) the pharmacist was friendly during the visit;
- 2) asked if you had questions or concerns;
- 3) listened to you;
- 4) helped you with your concerns related to the use of (antidepressant);
- 5) gave you clear instructions on how to take (antidepressant);
- 6) gave you a clear explanation about how (antidepressant) would affect you;
- 7) made decisions about your prescription without your input;
- 8) discussed alternative treatment options with you;
- 9) talked about things that you could do to help you feel better.

Factor analysis on the entire scale resulted in three factors and the decision to eliminate items 7, 8, and 9 from the scale. Factor analysis conducted on the reduced item list resulted in two factors. Items 5 and 6 separated out from items 1, 2, 3, 4, 7, 8 and 9 in the factor patterns.

The six item scale was analyzed and results of the scree plot showed a large separation between component one and the remaining string of components suggesting that the six item scale was appropriate to use as a summary scale. Cronbach

alpha of the Pharmacist Initial Communication Style scale equaled 0.69.

#### C.4 Knowledge of Medication Regimen

A series of open-ended questions were asked concerning consumer knowledge about their antidepressant medication regimen. The items were developed through discussions with researchers experienced in the areas of medication compliance and consumer experiences with health care. The researchers attempted to measure the concepts necessary for an individual to comply with a medication regimen. The basic information necessary includes: 1) the number of tablets or capsules to take as a dose; 2) the frequency of doses; 3) time of day to take dose; and 4) expected length of treatment. In the case of antidepressant medication treatment additional information helpful in effective medication use includes: 5) potential side effects to expect; 6) how to manage side effects if they occur; 7) how the medication works and 8) how long you need to take the medication before it is effective. The items were coded after all the interviews were completed. All except one study participant reported knowing the number of tablets or capsules to take for each dose, how often to take a dose and when to take the dose. The dose amount, when to take and frequencies

varied in this study sample because all antidepressant medications were considered to meet the study criteria. Since 99 percent of the participants reported knowing the amount, number, and time of daily doses these items were not included in the analysis. The five remaining variables:

- 1) How long does your doctor want you to take this prescription?
- 2) Were you told about any side effects related to taking (antidepressant)? (If yes, what were you told)
- 3) Were you given any instructions about what to do if you experienced a side effect? (If yes, what were you told?)
- 4) Were you told how (antidepressant) works? (If yes, describe)
- 5) Were you told how long it would take before you felt any better? (If yes, how long?)

made up the Knowledge Index score. All responses were reviewed and considered before determining the coding scheme. An item was coded zero when the consumer was unaware of an answer. An increasing number of points were assigned for increased knowledge.

Length of treatment responses ranged from "unaware" to "a couple of weeks" to "forever". These responses were coded zero to four where "unaware" described zero, "less than one month" described one, "one to six months" described two, "6 months"

described three "chronic use" described four. Potential side effects were coded zero for responses "none known", one when consumers reported one or two side effects and two when consumers named at least three side effects. Management of side effects was coded zero when the consumer did not know what to do about side effects experienced, one point when the consumer responded that they would call the doctor, two points when they reported specific solutions to side effects and three points when they had specific solutions and would call the doctor. The coding for how the medication works ranged from zero to two, "unaware" described zero, one point was assigned when the consumer made general comments like "helps a person to feel more relaxed" and two points were assigned when the consumer responded with specific terms like "it increases the serotonin levels which improves a persons ability to experience enjoyment". The fifth variable, when to expect to start feeling better, was coded zero when the consumer had no idea, one point when the consumer said after the first dose or some period of time less than two weeks or more than six weeks and two points were assigned when the consumer responded in the range of two to six weeks. The Knowledge Index ranged from zero to thirteen, higher scores defined greater knowledge.

### C.5 Anticipated value of antidepressant treatment

It is not common to ask consumers about their anticipated value of taking a medication. Nothing in the literature described such a scale for any type of medication, therefore, an anticipated value scale was developed using concepts from the Health Belief Model, other health behavior literature and discussions with researchers experienced in these areas. The researcher determined anticipated value to be a construct that included perceived benefits and perceived costs of taking medication. The participants were asked this series of items as the benefits of medication:

- 1) overcoming depression usually requires taking an antidepressant;
- 2) antidepressants are useful in treating depression;
- 3) taking this medication is a good option for me.

The following list of items were developed to define the costs or negative aspects of taking antidepressants:

- 4) I would prefer a different medication;
- 5) when my doctor gave me this prescription, I had an alternative course of action in mind;
- 6) I have worries or concerns about (the antidepressant) that have not been dealt with by my health care providers;
- 7) side effects of (the antidepressant) are likely to be bothersome;

- 8) taking antidepressants on a daily basis can be harmful to your body.

The positive statements were scored five for a "strongly agree" response and each lesser agreeing response decreased by one point consecutively down to a score of one for "strongly disagree". Scoring was reversed for the perceived cost items, so that higher points were scored for responses disagreeing with negative aspects of antidepressant use.

The items were analyzed using factor analysis with a scree plot to finalize the anticipated value scale. The eight item scale resulted in three factors, in order to eliminate one factor, items two and five were removed. The removal of item five was not a surprise to the researcher because this item usually disrupted the flow of the interview. Consumers did not necessarily ask for clarification however silence and a longer pause prior to answering conveyed to the researcher that the item caused some confusion. The researcher intended the statement to encompass other treatment options like psychotherapy or sleep medication. However, comments made by some consumers lead the researcher to believe the statement was unclear.

The final Anticipated Value scale was the summation of

items 1,3,4,6,7, and 8. Results of factor analysis with a scree plot indicated two factor patterns were present however, the separation between factor one and the remaining string of variables on the scree plot indicated that a summary scale was appropriate to use. The Cronbach coefficient alpha equals 0.65 and is only minimally acceptable for a scale alpha. Alpha is a indication of the proportion of variance in the scale scores that are attributable to the true score. The reliability coefficient alpha is an important indicator of a scale's quality. The possible scale range is six to thirty. The sample Anticipated Value scores ranged from 13 to 29 with a mean score of 21.8.

#### C.6 Prescriber Follow-up Communication Style

The treatment process is influenced by follow-up interactions between consumer and providers. Two follow-up communication styles considered important in the treatment process are participatory manner in problem solving and monitoring behavior.

Providers using a participatory approach view consumer feedback as a necessary aspect of patient care. Providers using a participatory approach attempt to obtain consumer input related to medication treatment. The following list of items

were developed to measure the concept of provider participatory manner:

- 1) (provider) encourages you to express your concerns or problems with taking (antidepressant);
- 2) (provider) asks you if you have any questions or concerns about (antidepressant);
- 3) (provider) listens to your concerns about (antidepressant);
- 4) (provider) helps you solve problems related to your use of (antidepressant).

The four items were scored using a five point Likert scale of strongly disagree to strongly agree. A score of five was coded for a "strongly agree" response and a score of one was coded for a "strongly disagree" response.

Providers who monitor medication use realize treatment plans need to be adjusted according to consumer responses. Directions and treatment goals need to be refined and restated during the treatment process. Providers who are monitoring medication use are concerned about consumer experiences with medication- positive and negative, whether or not the consumer actually takes the medication as directed and if other concerns have risen. The following four items were developed to measure the concept of provider monitoring style:

- 1) has (provider) asked how (antidepressant) is working for

you?

- 2) has (provider) asked how you are taking (antidepressant)?
- 3) has (provider) asked if you experienced any side effects?
- 4) has (provider) asked if you are having any other problems?

The items were scored one for a "yes" response and zero for a "no" response. The participatory manner and monitoring items were asked during the second telephone interview.

Some study participants did not have a follow-up visit with their prescriber. Thirteen consumers did not talk with the prescriber a second time. In these cases, consumers could not evaluate their prescribers' participatory manner or monitoring behavior.

Prescriber follow-up was scored zero to four where zero represented the least in follow-up and four represented the most in follow-up. Consumers who never discussed follow-up were coded zero. A point was added for each increase in intensity of follow-up. One point was assigned when the prescriber recommended a follow-up appointment be scheduled. One point was added if the visit actually occurred. One point was added for demonstrating one of the follow-up behaviors, monitoring or participatory manner in problem-solving and another point was added when the prescriber demonstrated both

behaviors during the follow-up visit.

Consumer evaluations of prescriber participatory manner and monitoring were used to determine prescriber follow-up style. A point for demonstrating participatory manner was scored when consumers evaluated prescribers with agree or strongly agree for all four participatory manner items. Similarly, a point for demonstrating monitoring behavior was scored when consumers evaluated prescribers as having asked all four monitoring items. Prescriber follow-up point assignment is stringent because consumers tend to evaluate their own prescribers high and the researcher attempts to attain a distribution of prescriber follow-up style. Prescriber follow-up coding follows:

- 0 = No follow-up discussed;
- 1 = Follow-up recommended;
- 2 = Follow-up contact occurred;
- 3 = Prescriber demonstrates either participatory manner or monitors medication use during follow-up contact;
- 4 = Prescriber demonstrates participatory manner and monitors medication use during follow-up contact.

#### C.7 Pharmacist Follow-up Communication Style

The Pharmacist Follow-up Communication Style items were the same as the prescriber items. Consumers were asked four

items to measure pharmacist participatory manner in problem solving and four items to measure pharmacist monitoring style. Responses to the participatory manner items were five point Likert scale strongly agree to strongly disagree. Responses to the four monitoring items were simply yes or no. Seventeen consumers did not refill or pick up their prescription personally. Therefore these consumers could not rate their pharmacists' follow-up communication style. Pharmacist follow-up was scored zero for the least amount of follow-up and three for the most in follow-up. Consumers who did not interact with the pharmacist in follow-up were coded zero. A point was added for each increase in intensity of follow-up. A point was assigned when consumers did interact with a pharmacist. A point was assigned when the pharmacist demonstrated either participatory manner in problem solving or monitoring behavior. A point was added when both follow-up behaviors were demonstrated by the pharmacist. Consumer evaluations of pharmacist participatory manner and monitoring behavior were used to determine the pharmacist follow-up score. Consumers responding agree or strongly agree to all four pharmacist participatory manner questions were coded as demonstrating participatory manner. Consumers responding yes to at least two

pharmacist monitoring items were coded as demonstrating monitoring behavior. In summary, pharmacist follow-up is coded as follows:

- 0 = No follow-up with pharmacist;
- 1 = Follow-up contact occurred;
- 2 = Pharmacist demonstrates either participatory manner or monitors medication use during follow-up contact;
- 3 = Pharmacist demonstrates participatory manner and monitors medication use during follow-up contact.

#### C.8 Medication Evaluation

Consumer evaluation of antidepressant use was measured using four items in the second interview:

- 1) would you say since taking (antidepressant) you feel better;
- 2) how much does (antidepressant) bother you;
- 3) how necessary is (antidepressant) to your good health;
- 4) how would you evaluate your overall experience with (antidepressant).

Responses to the first item were scored zero for "none", one point for "a little", two points for "some" and three points for "a lot". The scoring was reversed for item two so that the highest score described "not bothersome". Item three was scored zero for "unknown", one point for "not", two points for "somewhat", three points for "very". Item four was scored

from one to five where "very satisfied" described five and "very dissatisfied" described one.

Factor and correlation analyses suggested the elimination of the third item, "how necessary is the medication to your good health". The resulting three item medication evaluation scale resulted in a Cronbach coefficient alpha score of 0.81 and one component from the factor analysis.

#### C.9 Depression Symptom Scores

Study participants were asked to report how much of the time they experienced specific depression symptoms prior to starting the antidepressant medication and again during the follow-up interview. A 13 item depression symptom scale was developed for the telephone. The scale included 9 cognitive-affective symptoms: 1) lack of interest in things I used to do; 2) lack pleasure in being with friends/family; 3) feeling sad, blue or down in the dumps; 4) feeling slowed down or restless; 5) thoughts of death or suicide; 6) feeling hopeless; 7) feeling anxious; 8) feeling irritable; 9) lack of interest in sexual activity and 4 somatic items: 10) appetite problems; 11) problems concentrating, thinking, remembering, or making decisions; 12) trouble sleeping or sleeping too much; 13) lack of energy or feeling tired all of the time. Each item

describes a symptom of depression and the scale represents the major components of depressive symptomatology: depressed mood, feelings of hopelessness, change in appetite, sleep disturbance, reduced energy and thoughts of death or suicide. Each item has four responses ranging from "none or little of the time" scored as one to "all or most of the time" scored as four. Results of a correlation analysis on the 13 items suggested removing the item "feeling irritable" in order to improve the Cronbach alpha score. The 12 items were summed to create a severity of Depression Symptom Score, the score ranged from 12 to 48. Results of factor and correlation analyses show the initial and follow-up scores measure one factor and have Cronbach alpha scores of .85 and .90. The difference between the initial depression score and the follow-up score is considered the change in depression symptoms and reflects one measure of clinical outcome of the study period.

#### C.10 Background Factors

The interview instrument included background factors important to control for when studying treatment continuation. Consumers are described by age, gender, college education or not, household income, whether or not they have taken antidepressants previously, initial antidepressant prescribed

and any changes, condition for which the antidepressant was prescribed, and health insurance benefits.

#### C.11 Antidepressant Medication

Individuals over the age of 18 years, who understand and speak English and were initiating any type of antidepressant medication as classified in current pharmacy literature could participate in this study. A list of antidepressants was given to each participating pharmacy as an aid in the enrollment procedure. The list of antidepressants available for prescription during the study period is located in Appendix E. The antidepressants were classified as Selective Serotonin Reuptake Inhibitors (SSRI) or "not SSRI" for the purposes of analysis. Consumers prescribed fluoxetine (Prozac), sertraline (Zoloft) or paroxetine (Paxil) were coded as SSRI antidepressant type. Consumers prescribed bupropion (Wellbutrin), venlafaxine (Effexor), nefazodone (Serzone), trazodone, amitriptyline, desipramine, imipramine or nortriptyline were coded as not SSRI type antidepressants.

The dichotomy was used because the SSRI agents are considered to have a more favorable response than the other antidepressants by consumers. Perhaps because the "not SSRI" group is made up of older and newer antidepressant agents, the

dichotomous grouping did not appear useful or significant in explaining any of the research questions.

#### C.12. Treatment Continuation and Adherence

The dependent variable, treatment continuation, was determined by asking the study participants if they were currently taking the antidepressant. When the participant responded "NO" a series of questions was asked in order to understand whether or not the individual was continuing with some type of medication treatment. For example, the individual was next asked when did you stop? Did you start another medication? Are you currently taking that? Treatment with another medication was considered continuation because the individual was actively part of a treatment process. Treatment was coded discontinued when the participant replied that the antidepressant had been stopped prior to the prescriber's recommendation and no other medication was prescribed.

Participants responding "YES" that he or she was currently taking the antidepressant, were then asked a series of questions about how often the medication was taken and how often it was forgotten or a dose was added. These items served to clarify whether or not the medication was taken in the manner consistent with the intended use. Treatment omissions

were determined by consumer responses to items about purposely omitting doses or forgetting doses. Consumers were asked to recall dose omissions in the past week as well as the entire treatment period. Consumers were coded as follows:

- 0 = No dose omissions reported
- 1 = Some dose omissions reported
- 2 = Discontinued treatment early

The items were developed and used in previous research and were borrowed from the "Brief Medication Questionnaire".

#### D. INSTRUMENT IMPLEMENTATION

##### D.1 Reliability and Validity

Scales are reliable to the extent to which they produce consistent results (Fowler & Mangione, 1990). Internal consistency was calculated using Cronbach's alpha for continuous variables: Initial Prescriber Communication Style, Initial Pharmacist Communication Style, Knowledge Index, Perceived Value of Antidepressants, Follow-up Prescriber Communication Style, Follow-up Pharmacist Communication Style and Medication Evaluation.

Validity of the instrument is determined by testing it in relation to the purpose for which it is being used (Carmines & Zeller, 1979). The degree of concurrent validity (a type of

criterion-related validity) depends on the extent of the correspondence between the test and the criterion. For the questions assessing self report of daily medication use criterion-related validity has been shown with the Brief Medication Questionnaire (BMQ) in previous studies of other types of medication (Svarstad & Chewning, 1991). Content validity depends on the extent to which an empirical measurement reflects a specific domain of content. While it is important to determine content validity when developing new study instruments, this is difficult to assess (Carmines and Zeller, 1979). This research particularly focuses on the development of questions relating to provider approachability, being informative, participatory manner, and monitoring. Since the dimensions of each domain were conceived through prior research, content validity will be assumed. Construct validity depends on associations with other measures consistent with theoretically derived hypotheses concerning the concepts being measured. Study participants are responding to questions about medication knowledge separate from provider services. These sections will be analyzed for correlations.

#### D.2 Interviewing Procedures

All communication with consumers concerning the study was

conducted by telephone or mail. Initially, the researcher and consumer talked briefly in order to answer each others questions. The researcher took this opportunity to determine whether or not the individual met the three study criteria (presented previously). Consumers were informed about the study, the usual interview length, a brief description of the type of questions asked and encouraged to participate. Most individuals meeting the study criteria readily agreed to participate. The researcher spoke with four individuals who met the criteria but were not interested in participating in the study.

In the cases where individuals had received study packets from their pharmacists, the researcher reviewed the material and answered consumer questions during the first phone call. Consumers were asked to sign consent forms and return in the stamped addressed envelope provided. In other cases, consumers were mailed the study packets after talking with the researcher. Interview dates were scheduled at times convenient to the consumer and researcher. Interviews could be scheduled any day of the week between the hour of 7am and 10pm depending on the researcher's schedule for the week. Usually interviews were scheduled to occur within the next couple of days.

Overall, the scheduling and completing of interviews went well. However, often interviews were rescheduled because of unforeseen conflicts for example, the consumer may have worked late, friends dropped by, or it just was not an opportune time for the consumer.

The first interview required about 45 minutes to complete. Study participants seemed pleased to tell their stories and responded candidly about their condition and their treatment. The researcher hand wrote the comments of each respondent directly onto an interview schedule during the telephone conversation, close-ended items were circled or checked. At the end of the first interview consumers were reminded that a second interview was needed in approximately two months. The researcher immediately recorded the consumer's identification number on a calendar, marking the expected date of the second interview as her reminder to call the consumer. The researcher maintained individual files for each participant which contained the signed informed consent, initial interview schedule and the follow-up interview schedule. The researcher referred to the first interview prior to conducting the follow-up interview. This allowed the researcher to refresh herself on the consumer's story, ensuring clear and complete inquiry

about the treatment process by having the names of the prescriber, pharmacy and antidepressant prescribed readily available.

As time for the second interview approached, the researcher telephoned the consumer to schedule the telephone interview. The interview was scheduled at the consumer's convenience. The second interview was shorter in length than the first interview and required approximately 30 minutes to complete. Participants were thanked at the end of the interview and again in a letter which was sent with the \$20 honorarium.

Upon completion of the interview process, the researcher began coding responses in preparation of analysis. All open-ended questions were typed directly into a word processing program. The printed copies were scanned for patterns to determine coding responses. After coding schemes were determined each consumer interview was reviewed and the open-ended questions were hand coded item by item first by a research assistant and then by the researcher.

#### E. DATA ANALYSIS

The data collected during the two interviews with each study participant were entered into the computer using

SPSS/PC+. The data were cleaned and further prepared for analysis using SAS Institute Inc. statistical software. The statistical analysis employed factor analysis, correlations, and multiple regression statistics. Statistical tests are two-tailed and set at the five percent significance level.

Research results, analysis and discussion of consumer perspectives are presented in the following chapters. Chapter Five begins with a description of the pharmacy sites by geographic region, business type and the numbers of consumers enrolled. Descriptive statistics describing participant background factors, Initial Prescriber Communication Style, Initial Pharmacist Communication Style, Knowledge Index and Anticipated Value of antidepressant medication are presented. Multivariate analyses is presented with correlation coefficients and regression equations. Hierarchical regression is used to test the model predicting a positive attitude toward medication use.

Chapter Six presents data from the second interview. Consumer follow-up experiences with prescribers and pharmacists are presented. Consumer experience with medication use is described. Multivariate analyses presenting correlations and regression equations testing the model of predicting a positive

evaluation of antidepressant use are presented and discussed.

Chapter Seven presents the major portion of the analysis focused on antidepressant treatment continuation and adherence. This analysis focuses on treatment omissions. The unit of analysis is consumer behavior in taking antidepressant medication. The goal is to explain treatment omissions in relation to the independent variables discussed previously, consumer perceptions of providers' initial communication style, knowledge of medication regimen, anticipated value of treatment, providers' follow-up style and evaluation of medication use. Variables will be added to the analysis in discrete stages in order that assessment can be made as to which set of variables contributes to the total explanatory power of the model. The final regression equations predicting treatment adherence with antidepressants are presented.

Consumer clinical outcomes are presented with analysis and discussion of depression scores before and after antidepressant medication use. Factors predicting clinical improvement are presented and discussed. Consumer treatment goals are discussed and outcomes presented.

#### F. LIMITATIONS

There are several limitations to this study. The first

relates to the use of one geographic location. Study findings will be less generalizable to other populations because pharmacies are limited to Dane County. It is likely that health providers and consumers in Dane County are highly educated, have some affiliation with the University of Wisconsin Madison, and therefore are inclined to participate in a research project.

A second limitation relates to the research focus which is utilizing consumer evaluations and perceptions of their treatment process. Reliance on an individual's perceptions risks recall bias and limits study findings to a subjective measure. In order to decrease the risk of poor recall, the study was designed to interview consumers within a timely fashion of beginning antidepressant treatment. It is noteworthy that health care providers frequently interview patients concerning previous health and illness conditions. The patient reports are then recorded in patient records and considered facts for further medical decisions to be based upon. In that light, consumer perspectives gathered for this research analysis are useful and informative findings for improving our understanding of the treatment process.

A third limitation involves the enrollment procedures. It

is possible that pharmacists selectively address more approachable consumers or that their description of the project does not make the invitation to participate worthwhile. A second problem with the enrollment procedures is that the pharmacist-consumer interaction will be influenced because of the enrollment request. For example, as the pharmacist takes time to inform the consumer about the study, focus is taken away from medication counseling. Another problem occurs if the pharmacist becomes aware of the research contents and thus changes his or her counseling behavior. A fourth problem with the enrollment procedures was that we ultimately relied on self enrollment by consumers. Consumers who take the time to telephone a researcher and ask about study participation are possibly different from the mainstream population. At the very least they are motivated individuals desiring to discuss their antidepressant medication treatment. Our study sample was composed of individuals of all ages and while 25 percent of them did discontinue treatment they completed the study protocol.

A fourth limitation to the study is the use of newly designed instruments in measuring consumer perceptions of their prescriber communication style, pharmacist communication style,

beliefs about antidepressants, and medication experience. The instruments were based on previous research and therefore have some research validity however research items often require intense preparation, editing, testing and retesting to ensure validity and reliability in the research field.

## CHAPTER FIVE

INITIAL TREATMENT PROCESS:  
PRESCRIBER AND PHARMACIST COMMUNICATION STYLE  
AND ANTICIPATED VALUE OF ANTIDEPRESSANTS

Data collected during the first interviews with consumers are presented. The data were obtained from personal interviews conducted by telephone with 100 individuals at the beginning of their medication treatment. The interviews were structured but allowed individuals to make additional comments in order to express themselves more completely. The data presented is quantitative and is supplemented at times with consumer quotations to more fully express the spirit of their responses.

Study enrollment sites, consumer background factors and treatment process variables are presented. The community pharmacy sites where consumers were identified for study participation are described in three ways. The sites are categorized as chain, health maintenance organization (HMO) or independently owned businesses. In addition the pharmacy sites are described as in a peripheral or central location in the county. Finally, the sites are described by the number of individuals each enrolled into the study.

The sample is described by consumer background factors including gender, age, education, household income and health insurance benefits. In addition, consumer clinical background factors are presented. Consumer clinical factors include: 1) the reason for the prescription; 2) initial depression symptoms; 3) whether or not this is first time antidepressant use; and 4) initial antidepressant type prescribed.

The initial treatment process variables describe consumer perceptions of their providers' communication styles during the prescribing and dispensing of the antidepressant medication as well as anticipated value consumers place on the medication. The initial treatment process variables include prescriber initial communication style, pharmacist initial communication style, consumer knowledge index of antidepressant regimen and anticipated value of antidepressant medication treatment.

Relationships between variables are presented first with Pearson correlation coefficients. The correlation analysis examines significant bivariate relationships between all variables emphasizing the relationships between the independent variables, consumer background factors and initial treatment process variables, and the dependent variable, anticipated value of antidepressant medication.

Multivariate relationships are then examined with the use of regression analysis. The effects of multiple independent variables on the dependent variable are described. The regression modeling is completed using a hierarchical process. The first step is to regress the consumer background factors on the dependent variable. The second step is the regression of the consumer background factors and the treatment process variables on the dependent variable. The resultant cumulative R-square series is useful for extracting as much causal inference as the data allow.

The research goal is in establishing the extent to which providers' communication styles influence consumer beliefs about their medication and then how consumer beliefs influence their own medication taking behavior and clinical outcomes. This research analyzes the relationship in steps, first establishing a relationship between initial providers' communication styles and initial beliefs about their medication. The second step presented in Chapter Six focuses on the relationship between follow-up contact with providers and consumer evaluation of medication use. The third step of the analysis, presented in Chapter Seven, focuses on the relationships between medication beliefs and antidepressant

dose omissions. Chapter Eight focuses on relationships between consumer beliefs, behaviors and clinical outcome. Depression symptoms at follow-up are presented and predictors of better clinical outcomes are discussed.

#### A. DESCRIPTIVE STATISTICS INITIAL INTERVIEW

##### A.1 Pharmacy Site Characteristics

Table 2 presents a description of the 23 community pharmacies that helped in the enrollment of 100 study participants. All of the community pharmacies were located in Dane County. Originally, sixteen centrally located pharmacies were contacted before the target number of fifteen were enrolled into the study. One independent pharmacy declined study participation. Two additional HMO pharmacy sites asked to participate in the study when they learned of the study because other sites from the same HMO were involved in the study. These two sites enrolled nine consumers. Two chain pharmacies agreeing to participate did not identify any potential study participants. Fifteen centrally located pharmacies enrolled 73 consumers.

The sixteen pharmacies located in the peripheral region of Dane County were contacted about study participation. Six independently owned pharmacies declined study participation.

Table 2: Pharmacy site characteristics

CENTRAL		PERIPHERY	
PHARMACY TYPE	# CONSUMERS ENROLLED	PHARMACY TYPE	# CONSUMERS ENROLLED
Chain 1	1	Chain 1	2
Chain 2	2		
Chain 3	3		
Chain 4	8		
Chain 5,6	0		
Subtotal 14		Subtotal 2	
HMO 1	1	HMO 1	1
HMO 2,3	2		
HMO 4,5	4		
HMO 6	5		
HMO 7	7		
HMO 8	8		
Subtotal 33		Subtotal 1	
Indep 1	1	Indep 1	1
Indep 2	2	Indep 2	2
Indep 3	23	Indep 3,4	4
Indep 4	Declined	Indep 5	5
		Indep 6	8
		Indep 7,8	0
		Indep 9-14	Declined
Subtotal 26		Subtotal 24	
TOTAL CENTRAL PHARMACIES: 18	TOTAL CENTRAL CONSUMERS: 73	TOTAL PERIPHERY PHARMACIES: 16	TOTAL PERIPHERY CONSUMERS: 27

Two independently owned agreed to participate but failed to identify any potential study participants. Therefore, eight peripherally located pharmacies enrolled twenty-seven consumers.

The sampling design planned to achieve an enrollment of consumers proportional to Dane County so that 60 percent of the consumers were from central Dane County. While 73 percent of the total sample were enrolled through the fifteen pharmacies located in the central region of the County (Madison and contiguous zip codes), 63 percent of the participants' home addresses were located in central Dane County. This number is very close to the target enrollment plan.

Community pharmacies identified as chain, HMO and independently owned helped in the enrollment process. Seven chain pharmacies enrolled sixteen participants, nine HMO pharmacies enrolled 34 participants and eleven independent pharmacies enrolled 50 participants. The most common number of participants enrolled per site was two and the median was three. Enrollment per site ranged from 1 to 23 consumers.

The number of consumers identified and enrolled at one centrally located independent pharmacy was very high in comparison to all other pharmacies. Enrollment was finally

stopped when it became obvious that research findings could be skewed because 23 individuals had agreed to participate.

It is believed that enrollment was highest at this pharmacy because the researcher was well known to the workers and their increased awareness resulted in more aggressively attending to the identification of individuals meeting study criteria. It may be that the relationships between the pharmacists (and other pharmacy workers) and the pharmacy consumers contributed to the workers increased ability to initiate conversation about the study with individuals meeting the criteria or that individuals felt more inclined to participate because the pharmacist was involved in the study process or both. In addition, the consumers at this pharmacy could differ from other pharmacies in that they are more accepting of the idea of participating in a study.

The pharmacy is located near the University and serves a large segment of individuals affiliated with the University. It is tempting to consider the University affiliation resulted in an increased acceptance to participate in the study. However, the close proximity does not explain the large enrollment because another pharmacy in close proximity to the University enrolled only two consumers during the study period.

It is more likely that the consumer population at the pharmacy is different in nature, perhaps politically, and in their sense of cultural value. Therefore the participants enrolled from this pharmacy were compared to the other study participants for similarities and differences.

The 23 consumers from the centrally located pharmacy differed from the rest of the sample by the following factors: 1) more likely to have a college education; 2) less likely to be prescribed an SSRI type antidepressant; 3) younger in age; 4) lower household income; and 5) higher depression symptoms reported at follow-up. No differences were found in treatment process variables or treatment continuation. Significant findings are presented in Appendix F.

#### A.2 Consumer Background Factors

Table 3 presents the demographic characteristics of the 100 study participants. The sample is 76 percent female and 89 percent white. Consumer age ranges from 18 to 84 years with an average age of 36 years. The sample is educated, 72 percent attended college, graduated or earned graduate level degrees. Household income ranges from \$6,500 to \$150,000 with an average income of \$44,000. Ninety-six percent of the study participants have medical insurance. Ninety-three percent have

Table 3: Consumer background factors

Factor	Percent (N=100)
Consumer Gender:	
Female	76
Male	24
Consumer Race:	
Caucasian	89
Asian/Hispanic/African/Native American	11
Consumer Age Group:	
18-29	33
30-39	32
40-59	30
60-84	5
Household Income:	
\$6,500-\$15,000	17
\$15,001-\$30,000	21
\$30,001-\$50,000	33
more than \$50,000	29
Education:	
High school or less	13
Technical School	15
College	27
Bachelor Degree	22
Beyond Bachelor	23
Health Insurance Benefits	96
Includes prescriber visits	93
Includes prescription costs	92
Reason for prescription	
Depression	90
Pain/depression	3
Anxiety/panic	4
Physical condition	3
Antidepressant prescribed	
Wellbutrin	6
Effexor, Serzone, Trazodone	7
Amitriptyline, Desipramine, Nortriptyline	10
Paxil	14
Prozac	17
Zoloft	46
Previous antidepressant use	
Yes	41
No	59
Initial Depression Score	
17-29	24
30-36	29
37-41	25
42-48	22

insurance coverage for the prescriber visits and 92 percent have prescription coverage. Sixty-one percent of the consumers were insured with HMO plans (Physicians Plus, Dean and Unity).

Little variation was reported in some background factors and will not be used in further analysis but are discussed briefly. In particular, health insurance benefits did not vary in this sample. As mentioned previously, ninety-six percent of the consumers were insured. Of those insured, 66 percent of the consumers were insured with HMO plans. Health Maintenance Organizations commonly provide prescriber visits at no additional fee and prescriptions with nominal co-payment.

Individuals without insurance brought up their concerns about financial costs incurred when seeing prescribers for follow-up visits and refilling their prescription. In those few cases, the researcher believes treatment continuation was questioned in terms of financial costs. Consumer #11608 was enrolled in the *Paxil Access to Care* system (paroxetine is provided to the consumer at no fee) by her physician. She expressed her financial concerns related to her physician visits this way,

"I would like to see the doctor again and talk about the dose and effectiveness, but that costs money. So, I just call (physician's office) and say, I need

a refill, at least I can keep taking the medication."

Whether or not an individual has insurance would be of interest in future studies. At the time of this study psychiatrist diagnostic fees were approximately \$170 and follow-up appointments \$70. Psychologist counseling fees are approximately \$100 per hour. Antidepressant medication costs vary but based on the antidepressant prescribed most in this study, the approximate price for thirty tablets of sertraline (Zoloft) 50 milligrams is \$58. A consumer's economic situation, including health insurance benefits, is an important measure when studying treatment continuation with antidepressant medication.

In summary, this study sample is young, well-educated and financially secure. A few study participants have either long term physical illness or have recently experienced a work related injury resulting in their inability to work and thus have lower incomes, often lower than accustomed to and accompanying financial pressures. However, this is a small percent of the study sample and can not be analyzed sufficiently in this endeavor.

### A.3 Consumer Clinical Background Factors

Table 3 also presents clinical background factors of the study participants. During the first interview, consumers were asked the reason for the antidepressant prescription, the name of the medication they were prescribed, if they had taken antidepressant type medication previously and their depression symptoms prior to starting the antidepressant.

Forty-six percent of the consumers reported sertraline (Zoloft) as the antidepressant prescribed. Seventeen percent were prescribed fluoxetine (Prozac) and 14 percent were prescribed paroxetine (Paxil). Thus, 77 percent of the study participants were prescribed antidepressants from the class called selective serotonin reuptake inhibitors (SSRI). Thirteen percent were prescribed other newer type antidepressants. These medications include bupropion (Wellbutrin), venlafaxine (Effexor), nefazodone (Serzone) and trazodone. Ten percent of the consumers were prescribed antidepressants from the tricyclic class of medications. These antidepressants prescribed include amitriptyline, desipramine, imipramine and nortriptyline.

For purposes of further analysis the medications were coded as "SSRI" or "Not SSRI". Consumers prescribed

sertraline, fluoxetine and paroxetine were coded as "SSRI". The remaining consumers' antidepressant prescriptions were coded as "Not SSRI". The dichotomous classification was chosen because of the sample distribution of antidepressants prescribed. Too few antidepressants were prescribed from some drug classes to make statistical comparisons by class. In addition, the sample size was not large enough to study drug entities separately. The SSRI medications are frequently presented in popular press and are fairly well known to the public.

Antidepressant medications are prescribed for reasons other than depression. Because consumers were enrolled through community pharmacies, diagnoses were unknown to the researcher. Therefore, the researcher asked consumers why the doctor prescribed the medication for them.

Ninety percent of the consumers reported depression as the reason for their antidepressant prescription. Of the remaining ten consumers, three reported depression and pain due to physical injuries as the reason, four reported nervous conditions as the reason for the antidepressant and three said unexplained physical conditions. None of the consumers seemed apprehensive about answering depression related questions

during the interview and all 100 completed the second interview process.

Fifty-nine percent of the consumers were taking an antidepressant for the first time. The rest of the study sample had taken antidepressants previously during their lifetime. Previous antidepressant use could influence study results because the consumers may be different from first time medication users in a number of ways. First of all, the consumers may have dealt with depression for a longer time than the other consumers. Secondly, consumers with previous use who have returned for treatment may be "treatment responders" which would influence initial antidepressant beliefs. Alternatively, consumers returning for treatment may be "treatment resistant" and have more depression symptoms and other resource concerns in their life because of chronic depression related problems. Lin and colleagues (1995) reported consumers continuing antidepressant treatment beyond three months were likely to have taken antidepressants previously.

Study participants were asked about specific depression symptoms prior to starting the antidepressant medication. Ideally the data would have been collected prior to the consumer starting the antidepressant. This design would have

reduced the risk of recall bias. However, because individuals were identified and enrolled through community pharmacies, most individuals had begun taking the antidepressant prior to being interviewed. In fact, only one participant started taking his antidepressant after the interview. In order to measure symptoms prior to taking an antidepressant, each consumer was asked to think about the two week period of time just prior to starting the medication when responding to the depression symptom items.

Table 4 presents consumer initial experience of depression symptoms. Fifty percent of the consumers reported feeling the following five symptoms *most or all of the time* in the two week period prior to starting the antidepressant medication: 1) lack of interest in things I used to do; 2) feeling sad, blue or down in the dumps; 3) feeling slowed down or restless; 4) trouble sleeping or sleeping too much; and 5) lack of energy or feeling tired all the time. The symptom consumers reported as experiencing the least was thoughts of death or suicide with a mean score of 1.7, which fell in the range of *none or little of the time to some of the time*. However, 19 percent of the sample reported thinking about death or suicide at minimum a *good part of the time*.

Table 4: Consumer depression symptoms initial (N=100)

Symptom	Percent	Mean (SD)
Lack of interest in things used to do		
None/little of the time = 1	11	
Some of the time = 2	18	
Good part of the time = 3	21	
Most/all of the time = 4	50	3.1 (1.1)
Lack pleasure in being with friends/family		
None/little of the time = 1	13	
Some of the time = 2	23	
Good part of the time = 3	33	
Most/all of the time = 4	31	2.8 (1.0)
Feeling sad, blue or down in the dumps		
None/little of the time = 1	6	
Some of the time = 2	14	
Good part of the time = 3	24	
Most/all of the time = 4	56	3.3 (0.9)
Feeling slowed down or restless		
None/little of the time = 1	3	
Some of the time = 2	17	
Good part of the time = 3	24	
Most/all of the time = 4	56	3.3 (0.9)
Appetite problems		
None/little of the time = 1	24	
Some of the time = 2	24	
Good part of the time = 3	19	
Most/all of the time = 4	33	2.6 (1.2)
Thoughts of death or suicide		
None/little of the time = 1	61	
Some of the time = 2	20	
Good part of the time = 3	10	
Most/all of the time = 4	9	1.7 (1.0)

Table 4: (continued)

Symptom	Percent	Mean (SD)
<b>Problems concentrating, making decisions</b>		
None/little of the time = 1	8	
Some of the time = 2	25	
Good part of the time = 3	19	
Most/all of the time = 4	48	3.1 (1.0)
<b>Trouble sleeping or sleeping too much</b>		
None/little of the time = 1	7	
Some of the time = 2	20	
Good part of the time = 3	16	
Most/all of the time = 4	57	3.2 (1.0)
<b>Lack of energy or feeling tired all the time</b>		
None/little of the time = 1	3	
Some of the time = 2	18	
Good part of the time = 3	25	
Most/all of the time = 4	54	3.3 (0.9)
<b>Feeling hopeless</b>		
None/little of the time = 1	15	
Some of the time = 2	21	
Good part of the time = 3	27	
Most/all of the time = 4	37	2.9 (1.1)
<b>Feeling anxious</b>		
None/little of the time = 1	18	
Some of the time = 2	25	
Good part of the time = 3	21	
Most/all of the time = 4	36	2.8 (1.1)
<b>Lack of interest in sex</b>		
None/little of the time = 1	16	
Some of the time = 2	32	
Good part of the time = 3	18	
Most/all of the time = 4	34	2.7 (1.1)
<b>Total Depression Score Initial</b>	<b>34.7 (7.4)</b>	
<b>Range</b>	<b>17 - 48</b>	
<b>Cronbach Alpha</b>	<b>.85</b>	

According to the depression literature, these results are not surprising. Criteria for clinical depression includes the presentation of a depressed mood or loss of interest/pleasure in things previously enjoyed, in addition to, changes in appetite, changes in sleep patterns and reduced energy.

Although people with depression often think more about death and suicide than people without depression, they are less willing to reveal this depression symptom. Suicide ideation is not usually volunteered in the initial phase of a clinical interview. Considering the situation of this interview, where individuals were asked to respond to a series of symptom questions, suicide ideation was not likely to be mentioned. Some individuals responded with surprise at the question. One respondent remarked that her situation was never that bad and that she had not considered suicide. Others did reveal self-destructive behavior they had thought about or acted upon prior to starting treatment. There were no instances during the interviews when the researcher felt concern about an individual's immediate safety.

The twelve symptom list was summed for a total depression symptom score. The possible Depression Symptom Score range was 12 to 48 where a higher score is equivalent to experiencing

more depressive symptoms, that is, feeling more depressed. The sample range is 17 to 48 with an average Initial Depression Symptom Score of 34.7 which can be described as experiencing all twelve symptoms a *good part of the time*. It is of concern that individuals receiving outpatient care are experiencing such extreme depression symptoms. Appendix G contains the frequency distribution of Initial Depression Symptoms.

#### A.4 Prescriber Initial Communication Style

Consumer perceptions of Prescriber Initial Communication Style are presented in Table 5. The score was computed by summing the six items. The possible score range was 0 to 18, the sample range is 3 to 18. The average Prescriber Initial Communication Style score is 15.2. The frequency distribution is presented in Appendix G.

Prescribers received high ratings overall. More than 75 percent of the consumers ranked their prescribers with the highest response, *very much of the time*, when asked if the prescriber was: 1) friendly during the visit; 2) asked (if the consumer) had questions or concerns; 3) listened to concerns; and 4) gave clear instructions on how to take the antidepressant. Prescribers were rated the lowest in giving a clear explanation about how the medication would affect the

Table 5: Prescriber and pharmacist initial communication styles

Category	Prescriber Percent (N=100)	Pharmacist Percent (N=97)
<b>Friendly during initial visit</b>		
Not at all = 0	0	0
Marginally = 1	5	6.2 (6)
Moderately = 2	16	23.7 (23)
Very Much = 3	79	70.1 (68)
Mean (SD)	2.7 (0.5)	2.6 (0.6)
<b>Asked if had questions/concerns</b>		
Not at all = 0	5	6.2 (6)
Marginally = 1	5	3.1 (3)
Moderately = 2	16	21.6 (21)
Very Much = 3	74	69.1 (67)
Mean (SD)	2.6 (0.8)	2.5 (0.8)
<b>Listened to concerns</b>		
Not at all = 0	0	11.3 (11)
Marginally = 1	5	7.2 (7)
Moderately = 2	10	19.6 (19)
Very Much = 3	85	61.9 (60)
Mean (SD)	2.8 (0.5)	2.3 (1.0)
<b>Helped with concerns</b>		
Not at all = 0	5	32.0 (31)
Marginally = 1	13	9.3 (9)
Moderately = 2	20	18.6 (18)
Very Much = 3	62	40.2 (39)
Mean (SD)	2.4 (0.9)	1.7 (1.3)
<b>Gave clear instructions</b>		
Not at all = 0	2	6.2 (6)
Marginally = 1	2	8.2 (8)
Moderately = 2	19	9.3 (9)
Very Much = 3	77	76.3 (74)
Mean (SD)	2.7 (0.6)	2.6 (0.9)
<b>Gave clear explanation</b>		
Not at all = 0	13	22.7 (22)
Marginally = 1	11	13.4 (13)
Moderately = 2	43	24.7 (24)
Very Much = 3	33	39.2 (38)
Mean (SD)	2.0 (1.0)	1.8 (1.2)
<b>Total Score</b>		
Range	3-18	2-18
Mean (SD)	15.2 (3.1)	13.5 (3.7)
Cronbach Alpha	.78	.69

consumer. However, on average consumers reported their prescribers as *moderately* giving a clear explanation on the medication effects, the second highest response possible.

While the correlation and factor analysis results were acceptable for creating a single scale to describe prescribers as approachable and informative, the items are limited in at least two ways. First, the item responses do not vary greatly. This means the variables do not discriminate well among respondents. That is, all individuals answer a given item similarly. An optimal scale consists of items with a diverse range of scores.

The second limitation to this scale is that the item means are skewed toward the higher response range. Study participants gave high ratings to their prescribers' approachability and informative styles. Literature describing patient behavior shows that in general consumers' rate doctors poorly, however they rate their own doctors kindly. Consumers rate their doctors kindly especially when the consumer feels the doctor was helpful. For many individuals, receiving the antidepressant prescription probably translated to having been helped by the prescriber and may be one reason for the consumers' positive evaluations of their prescribers styles of

being approachable and informative. Alternatively, the prescribers in the study could be quite communicative with their patients.

In addition to answering the scale items, participants candidly expressed observations of their initial prescriber visit. Reflecting the spirit of the high ratings is consumer #10102 comment:

"I was real surprised...so knowledgeable, he listened to me. He did not blow me off. He got his calling right. I was very satisfied, way more than I thought I'd be."

In some cases, consumers readily disregarded the prescriber's behavior during the initial visit. Examples of comments made by dissatisfied consumers #10712 and #10801 follow:

"I think the doctor decided what he was going to prescribe before he even talked with me".

"I have no idea why the doctor prescribed this for me, I told him I was tired and he told me to try this (Prozac)".

Another respondent, consumer #10707 reminded the researcher that traits considered desirable in a health care provider differ for individuals:

"He asked about my sleeping patterns and eating status. He did not smile. He is very quick,

unfriendly and monotone. I respected his intelligence."

In future studies the items could be reworded in a number of ways. First, the response set could be changed to something more relevant and measurable by respondents. The current response set: *not at all, marginally, moderately, and very much* is awkward in actual use. Another consideration involves rewording the items using stronger language so that individuals answer with a more diverse response range. A third consideration to improve the items would be the use of more specific terms when describing provider behaviors.

#### A.5 Pharmacist Initial Communication Style

Consumer perceptions of the Pharmacist Initial Communication Style observed when the antidepressant was dispensed for the first time are presented in Table 5. Pharmacist Initial Communication Style scores were computed by summing the six items. The sample range is 2 to 18. The average Pharmacist Initial Communication Score is 13.5 which translates to a ranking of *moderately* or the second highest in rank order for the six item scale.

Ninety-seven consumers rated their pharmacist's initial communication style. Three consumers did not interact with a

pharmacist concerning the antidepressant prescription. Two individuals had family members pick up the prescriptions and one consumer received samples from his prescriber and never filled an antidepressant prescription. The frequency distribution is presented in Appendix G.

Seventy-six percent of the consumers ranked their pharmacists with the highest response, *very much*, when asked if the pharmacist gave them clear instructions on how to take the antidepressant. Nearly 70 percent of the consumers responded with the highest ranking when asked if the pharmacist was friendly during the visit and if the pharmacist asked the consumer if they had questions or concerns about the medication. Sixty-two percent of the consumers ranked pharmacists with the highest response when asked if the pharmacist listened to concerns.

Pharmacists were ranked lowest in helping the consumer with concerns about taking an antidepressant medication and in giving a clear explanation of what to expect when they did. Nearly one third of the respondents said their pharmacist did not help at all with their medication concerns and one quarter of the respondents said their pharmacist did not give a clear explanation of what to expect from the medication. Consumers

mentioned that pharmacists were not given the opportunity to respond to concerns because consumers were often reluctant to begin a discussion with them.

These findings are not so surprising considering the typical pharmacy environment is a busy public place where private conversation is difficult to conduct. Considering the difference between prescriber and pharmacist initial communication styles perhaps consumers felt the doctor-patient visit was sufficient and a discussion with the pharmacist unnecessary. However, there is cause for concern that information is not shared between consumer and pharmacist.

Consumer comments concerning Initial Pharmacist Communication Style varied. Some consumers found pharmacists quite useful and helpful. Consumer #15301 shared this remark:

"I've always had strong confidence in pharmacists, I think they do a marvelous job".

Consumer #10716 made this comment about her choice in pharmacies:

"I'm treated with dignity and I know I will receive the right drug and an information sheet".

Other individuals did not value pharmacist input or found the pharmacy environment an unlikely place for a personal

conversation. These sentiments are expressed by consumers #14403 and #20302, respectively:

"I do not look to pharmacists for advice on anything. I just get the prescription filled. I consider the doctor the guy to talk to".

"I did not like talking about it amongst other customers. There is not enough privacy in the pharmacy".

Similar to the prescriber scale, most of the item responses in the pharmacist scale do not vary greatly and are skewed toward the higher response range. It would be desirable to have a scale that results in a more diverse range of scores. Rewording items using stronger language or changing the response set may result in individuals answering with a wider response range. In addition, more specific statements defining pharmacist behavior would improve the Initial Pharmacist Communication Style score and our understanding of the consumer-pharmacist relationship.

Participant comments point out the confusion occurring between the consumer and the pharmacist when an antidepressant medication is dispensed. A pharmacist may want to be more involved in the original consult while the consumer has no interest in discussing the prescription with the pharmacist. Alternatively, the consumer may want a longer discussion and

the pharmacist does not engage in communicating effectively. A third situation involves the consumer who does not expect much from the pharmacist. This situation is illustrated with the comment made by Consumer #13102 when asked if the pharmacist gave clear instructions on how to take Prozac:

"Well, sure he put a label on it which says take one every morning so, very much, my pharmacist gave me clear instructions".

This comment suggests more specific statements defining pharmacist behavior would improve the Initial Pharmacist Communication Style score.

#### A.6 Consumer Knowledge of Medication and Regimen

Response distributions of variables measuring consumer knowledge of their medication regimen, effects and management are presented in Table 6. Overall, the consumers knew how to take their medication. All except one of the study participants knew they were to take the medication daily. While the respondents did not necessarily know the milligram strength they knew in practical terms to take two capsules or one-half tablet. Only one participant (consumer #10715) did not know the number of daily doses prescribed. Her prescription had stepwise dose increases at weekly intervals and she was not aware of them. Eighty-four percent of the

Table 6: Consumer knowledge of medication regimen, effects and management (N=100)

Variable	Percent	Mean (SD)
<b>REGIMEN</b>		
When to take		
specific/same time of day	84	
unknown	16	
Number of daily doses		
once daily	87	
twice daily	12	
unknown	1	
Length of treatment		
unknown=0	38	
less than 1 month=1	8	
1 to <6 months=2	24	
6 months=3	14	
chronic use=4	16	1.6 (1.5)
<b>EFFECTS/MANAGEMENT</b>		
Side effects		
unknown=0	19	
1 - 2 side effects=1	38	
3 or more side effects=2	43	1.2 (0.75)
Solutions to side effects		
unknown=0	24	
call provider=1	46	
specific solutions=2	17	
specific solutions and call=3	13	1.2 (0.95)
How medication works		
unaware=0	47	
non-specific explanation=1	13	
specific terms/explanation=2	40	0.93 (0.9)
When medication starts working		
unaware=0	14	
less than 2 or > 6 weeks=1	22	
2 to 6 weeks=2	64	1.5 (0.7)
Summary Knowledge Index		
Range	0-12	
Mean (SD)	6.48 (2.8)	

consumers knew a specific time of day or knew to take the medication at the same time every day.

Nearly half of the sample lacked clear knowledge about the usual length of antidepressant treatment. Thirty-eight percent had no idea how long therapy should continue and eight percent thought they would be taking the medication for less than one month. Twenty-four percent believed the doctor wanted them to take the prescription for more than one month but not as long as six months. Thirty percent reported expected treatment length as six months or more. Some consumers reported that their prescriber insisted they commit to taking the medication for at least six months before initiating therapy and then reassessing the decision to try medication only after six months.

Consumers were informed about how antidepressant medications would affect them. Eighty-one percent knew of at least one potential medication side effect and 30 percent knew of specific solutions to adverse effects. Forty percent knew in specific terms how antidepressant medications work. Respondents described how the antidepressants work in clinical terms, such as, nerve synapse, neurotransmitter, and serotonin inhibitor. For example, Consumer #12406 said,

"Depression is a chemical imbalance in the brain, Prozac works on serotonin, as an uptake inhibitor in the brain."

Another respondent said she was shown a diagram of a nerve synapse and told that sertraline prevents the absorption of serotonin so that it can work in the transmission of the nerve synapse.

Forty-seven percent of the consumers were unaware of how the medication worked. Some consumers said they were told at the time and it made sense then but they could not remember at the time of our telephone interview. Others commented that they really were not in a state of mind to concentrate on how the medication worked. Some respondents seemed uninterested in how the medication worked. For example, when Consumer #20603 was asked if she were told how sertraline works she said,

"No, I don't think so. Did I care? No, I don't think so".

Fourteen percent of the consumers were unaware of the delayed treatment effect of antidepressants and 22 percent believed the medication started to work immediately or within one to two days while others believed it took more than eight weeks for a treatment effect. Sixty-four percent knew it would take between two and six weeks before the medication would take effect.

The consumer Knowledge Index was the summation of the four items referring to medication effects and management and the item referring to expected length of treatment. The five items were coded according to consumer responses. More points were scored for more specific knowledge. The possible range is zero to thirteen for the Knowledge Index. The study sample average is 6.5 and ranges from zero to twelve. The frequency distribution is presented in Appendix G.

#### A.7 Anticipated Value of Antidepressants

Consumer beliefs concerning anticipated value of taking antidepressants are presented in Table 7. The first two items measure benefits of antidepressant use. The remaining four items measure costs of antidepressant use. Item responses range from strongly disagree to strongly agree and are coded one to five. Anticipated benefits are coded so that five represents strongly agree. Anticipated costs are coded so that five represents strongly disagree. The six items are summed to create the Anticipated Value scale where a higher score is equivalent to greater value of antidepressant medication use. The possible scale range is six to thirty, the sample range is thirteen to twenty-nine. The average score is 21.8 which means the respondents anticipated the antidepressant as being more

Table 7: Anticipated value of antidepressant medication (N=100)

Variable	Percent	Mean (SD)
Overcoming depression usually requires an antidepressant medication (requires)		
Strongly Disagree = 1	4	
Disagree = 2	25	
Neither = 3	31	
Agree = 4	28	
Strongly Agree = 5	12	3.2 (1.1)
Taking this antidepressant is a good option for me (option)		
Strongly Disagree = 1	0	
Disagree = 2	1	
Neither = 3	6	
Agree = 4	41	
Strongly Agree = 5	52	4.4 (0.7)
I would prefer a different medication (nodiffer)		
Strongly Disagree = 5	18	
Disagree = 4	36	
Neither = 3	39	
Agree = 2	5	
Strongly Agree = 1	2	3.6 (0.9)
I have worries about taking the antidepressant (noworr)		
Strongly Disagree = 5	25	
Disagree = 4	53	
Neither = 3	7	
Agree = 2	13	
Strongly Agree = 1	2	3.9 (1.0)
Side effects are likely to be bothersome (noboth)		
Strongly Disagree = 5	9	
Disagree = 4	42	
Neither = 3	19	
Agree = 2	26	
Strongly Agree = 1	4	3.3 (1.1)
Taking an antidepressant daily can be harmful (noharm)		
Strongly Disagree = 5	11	
Disagree = 4	32	
Neither = 3	43	
Agree = 2	12	
Strongly Agree = 1	2	3.4 (0.9)
Total Anticipated Value Score		
Mean	21.8 (3.4)	
Range	13-29	
Cronbach Alpha	.65	

positive than negative in value. The frequency distribution is presented in Appendix G.

The responses to item one are normally distributed across the response set. While nearly one-third of the responses to item one were neutral, forty percent either agreed or strongly agreed that overcoming depression requires an antidepressant.

Responses to item two are skewed positively, reflecting little response variation by participants. Fifty-two percent strongly agreed and forty-one percent agreed to the statement "taking this antidepressant is a good option for me". Comparing the response distributions of item one and two suggests that consumers view their situation as serious enough to try medication. Alternatively, the process of making a doctor appointment, following through and seeing the doctor, describing symptoms to the doctor, as well as filling a prescription may contribute to a perspective that reinforces one's behavior.

Thirty-nine percent of the sample neither agreed nor disagreed to Item 3, "I would prefer a different medication". Fifty-four percent disagreed or strongly disagreed with the statement. Only seven percent of the participants responded that they would prefer a different medication. Some consumers

mentioned that they did not know enough about other medications to know if they would prefer something else. Some consumers mentioned that they asked for the specific antidepressant prescribed. One consumer was looking for the medications to control appetite but received a prescription for fluoxetine instead.

Responses to item four are skewed positively such that 78 percent said they did not have worries about taking the antidepressant, although respondents tended to simply disagree and not strongly disagree with that item.

Respondents tended to believe the side effects of the antidepressant would be tolerable, 51 percent responded disagree or strongly disagree to item five, "side effects are likely to be bothersome". However, 30 percent agreed or strongly agreed that the side effects would be bothersome. As mentioned previously, most participants had begun taking the antidepressant medication prior to completing the telephone interview. Therefore, it is likely that consumers were including their personal experience into their responses.

Responses to item six, "taking an antidepressant daily can be harmful" were roughly normally distributed with the greatest number of responses, forty-three percent, neither agree nor

disagree. Fourteen percent of respondents agreed or strongly agreed with the statement, believing daily use can be harmful. Forty-three percent disagreed or strongly disagreed with the idea that antidepressants are harmful.

Overall, respondents anticipate that antidepressant medication is a valuable form of treatment. They are concerned about medication side effects but believe the costs are worth risking in order to obtain the potential benefits of the medication. The following statements capture respondent beliefs concerning Anticipated Value of antidepressant use:

"I don't know, I think anything can be harmful but not taking this can be harmful too" (Consumer #20102).

"I don't like taking drugs of any kind let alone taking a drug that affects my psyche. But getting out of depression is largest concern now, so I am trying medication" (Consumer #15301).

"I did not want to go on medication but I'd gone for three months of therapy. The lack of progress and thoughts of physiological and hereditary beliefs led me to medication" (Consumer #14403).

"I would prefer not to take it, but if it improves my quality of life I'm willing to do it. I thought I would just go to counseling, but the medication will give me quicker results than the five to six months necessary for counseling" (Consumer #20201).

## B. BIVARIATE ANALYSIS INITIAL INTERVIEW

The strength of a relationship existing between two variables is evident by a Pearson correlation coefficient. The correlation coefficient value ranges from zero to one where a stronger relationship is indicated by a larger value. A negative sign indicates that the variables are inversely related to each other. Causation manifests itself in correlation and therefore this chapter proceeds with analysis of correlation and regression.

Pearson correlations were calculated between all eleven variables, the seven consumer background factors: 1) age; 2) gender; 3) college education or not; 4) household income; 5) initial depression symptoms; 6) previous antidepressant use; and 7) antidepressant type prescribed (SSRI or Not SSRI) and the four initial treatment process variables: 8) Prescriber Initial Communication Style; 9) Pharmacist Initial Communication Style; 10) Knowledge Index of medication regimen and 11) Anticipated Value of antidepressant medication. Table 8 presents the correlation coefficients, means and standard deviations of the background factors and treatment process variables. The variables are listed with consumer background factors first followed by treatment process variables. The

Table 8: Correlation coefficients, means and standard deviations for consumer background factors and initial treatment process variables (N=100)

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Age (18-84)	-										
2. Gender (0=Female)	.07	-									
3. College Education (0=No)	-.13	-.01	-								
4. Household Income (6500-150000)	.19	-.13	.13	-							
5. Depression Symptoms Initial (17-48)	-.45 ***	-.16	-.01	-.05	-						
6. Previously taken antidepressants (0=No)	-.02	.01	-.02	-.21*	.09	-					
7. SSRJ Type Initial (0=No)	.11	-.03	.08	.26 **	-.15	-.12	-				
8. Prescriber Initial Communication Style (3-18)	-.19	-.00	.06	.12	.21 *	.05	-.05	-			
9. Pharmacist Initial Communication Style (2-18)	-.05	-.07	-.01	-.18	-.02	-.11	-.08	-.01	-		
10. Knowledge Index med regimen (0-12)	-.24 *	-.00	.33 ***	.08	.12	-.16	.09	.24*	-.10	-	
11. Anticipated Value of antidepressant (13-29)	-.08	-.04	-.10	.08	.17	.13	.05	.31 ***	-.01	-.01	-
MEAN	36.6	.24	.72	43844	34.7	.41	.77	15.2	13.5	6.5	21.8
STDDEV	12.9	.43	.45	30223	7.4	.49	.42	3.1	3.7	2.8	3.4

\*p<.05 \*\*p<.01 \*\*\*p<.001

last variable, Anticipated Value, is the dependent variable in this step of the analysis. Pearson correlations were computed on data from 100 consumers for all variables except Pharmacist Initial Communication Style which included 97 consumers.

For purposes of regression analysis, it is desirable to have variables highly correlated with the dependent variable and not related to each other. So in the case of the variables presented in Table 8, it would be desirable to have variables one through ten highly correlated with the dependent variable and not with each other. A review of the table shows that this is not the case.

A few statistically significant relationships exist among the consumer background factors. First, younger individuals were more likely to report more initial depression symptoms ( $r = -.45$ ,  $p < .001$ ) than older individuals. Reports suggest diagnosing depression in older individuals is often difficult because symptoms are not recognized. Various reasons for the lack of symptom complaints in older people has been suggested.

Life events that come with age are both enjoyable and difficult. Social norms suggest aging individuals learn to expect losses in work roles, health, and independence and therefore "successful" aging involves a change in daily life

expectations. It is likely that as we age we learn to deal with stress more effectively and therefore symptoms experienced as depression differ between the young and old. This sample is young and regrettably reduces the ability to analyze age differences more closely.

Consumers with lower household incomes are more likely to have taken antidepressants before ( $r = -.21$ ,  $p < .05$ ). This finding is difficult to discuss in light of the validity of the income variable in this study sample. It might be tempting to say individuals with chronic depression do not attain financial potential. However, unforeseen difficulties arose in the household income measure. Household income is defined with difficulty by some especially, college students. A significant number of study participants lived with other people. In some cases the roommates were friends and shared expenses and in some cases individuals were financially independent of each other. In addition, although many of the college students were living in dwellings separate from their parents, they often continued to receive financial support. This relationship should be taken lightly.

Consumer background factors were related to treatment process variables. Younger individuals had a higher Knowledge

Index score ( $r=-.24$ ,  $p<.05$ ) than older consumers. Consumers with a college education had a higher Knowledge Index score ( $r=.33$ ,  $p<.001$ ) than individuals who did not have a college education. These relationships have been reported previously, age differences in health behavior are reflected in how individuals participate in the treatment process. Young individuals tend to ask questions and participate in the decision making. Older individuals tend to believe the doctor knows best.

In this sample the relationship between knowledge and age is shadowed by that of knowledge and education. Individuals who are in college or have a college education know more about their antidepressant medication and regimen than individuals who have not participated in college education. This sample is composed of younger college educated individuals and older individuals who have not been to college. The literature in this area suggests that when an individual has more information they tend to ask more questions and want even more information.

Consumers with lower household incomes were less likely to have an SSRI type antidepressant prescribed initially ( $r=.26$ ,  $p<.01$ ). Keep in mind that only twenty-three percent of the sample were not prescribed SSRI type antidepressants

originally. Of those, thirteen were prescribed newer type antidepressants that differ from SSRI agents and ten participants were prescribed the older tricyclic type antidepressants.

A number of explanations exist for this relationship. It is possible that the tricyclic antidepressants were prescribed to reduce consumer costs because these medications are available in generic form and are less expensive than SSRI and other newer type antidepressants. It is possible that the individuals received antidepressants according to their symptoms. In that case, individuals with pain, headaches, insomnia would be prescribed tricyclic antidepressants or new agents other than SSRI types. In this study individuals experiencing pain had reduced their work loads and thus incomes were reduced.

Consumers reporting more initial depression symptoms were more likely to rate Prescriber Initial Communication Style high ( $r=.21$ ,  $p<.05$ ). This relationship could suggest that prescribers distinguish between consumer depression symptom experiences and increase their communication style accordingly. Alternatively, individuals with depression could be so relieved to have talked with a doctor and received some help with their

depression that they rated the prescriber high in communication style. Individuals with more depression symptoms may have been very attentive to the interaction and thus rated the prescriber highly. Finally, individuals could be reluctant to be critical of their prescriber.

Two bivariate relationships between treatment process variables were observed. Consumer experience with the prescriber is related to beliefs about the antidepressant medication. Prescriber Initial Communication Style is related to consumer Knowledge Index ( $r=.24$ ,  $p<.05$ ) and Anticipated Value of antidepressant medication ( $r=.31$ ,  $p<.001$ ). Consumers' rating their Prescriber Initial Communication Style high had a higher Knowledge Index of medication regimen and a positive Anticipated Value of antidepressant medication. These relationships are interesting and significant findings in this study of communication in the treatment process. It is possible that prescribers with approachable and informative characteristics deliver more information and positively influence consumer beliefs about the treatment plan.

These positive and statistically significant correlations show that consumer perceived initial experience and rating of their prescriber is related to their initial level of

depression and more importantly their beliefs about the medication. The significant correlations suggest that a causal relationship may exist between perceived provider communication style and consumer medication beliefs. Approachable and informative prescribers may increase consumer knowledge about their antidepressant regimen and positively influence consumer beliefs concerning the anticipated value of antidepressant treatment.

#### C. MULTIVARIATE ANALYSIS INITIAL INTERVIEW

This section presents results of the multivariate analysis predicting a positive anticipated value of antidepressant medication use. The purpose of this portion of the analysis is to test how strongly background consumer factors and treatment process variables are related to consumers' anticipated value of antidepressant medication. In order to assess which set of variables contribute most to the model equation, the regression analysis was completed in three steps.

First, consumer background factors: age, gender, college education, household income, initial depression symptoms, previous antidepressant use and SSRI or Not SSRI type antidepressant prescribed were tested in the regression equation. In the second step two treatment process variables,

Prescriber Initial Communication Style and Pharmacist Initial Communication Style were added to the set and all were regressed on the Anticipated Value of antidepressant use. The final step was to add Knowledge Index to the regression equation and regress all onto the dependent variable. The hierarchical procedure is conducted to determine which variables contribute most to the dependent variable, Anticipated Value of antidepressant medication.

Results of the multiple regression analysis predicting a positive anticipated value of antidepressant medication use are presented in Table 9. The table presents standardized and unstandardized regression coefficients and the accompanying t-values. The standardized estimates (beta weights) provide an indication of the relative contribution of the variables to the prediction of attitude toward antidepressant use when the other variables are controlled.

No background factors were significant in predicting a positive anticipated value of antidepressant use. The first regression equation only explained 7 percent of the variance in Anticipated Value. A more conservative opinion would be based on the adjusted R-square and in this case shows the background factors explain one percent of the variation in Anticipated

Table 9: Multiple regression equations for consumer background factors and initial treatment process variables predicting consumer anticipated value of antidepressant medication

Variable	b	(SE)	beta	t	b	(SE)	beta	t	b	(SE)	beta	t
intercept	19.6	2.8	.00	6.9***	15.2	3.3	.00	4.6***	15.2	3.4	.00	4.5***
Age	-.01	.03	-.05	-.47	-.02	.03	-.07	-.65	-.02	.03	-.07	-.64
Gender	.06	.81	.01	.07	-.35	.78	-.04	-.45	-.35	.78	-.04	-.45
College Education	-.91	.77	-.12	-1.2	-.98	.75	-.13	-1.3	-.98	.79	-.13	-1.2
Household Income	.00	.00	.12	1.1	.00	.00	.13	1.2	.00	.00	.13	1.2
Depression Symptoms Initial	.07	.05	.15	1.3	.04	.05	.10	.88	.04	.05	.10	.87
Previously Taken Antidepressants	.98	.70	.14	1.4	1.1	.69	.17	1.6	1.1	.71	.17	1.6
SSRI Type Antidepressant	.63	.84	.08	.75	.76	.80	.10	.95	.76	.81	.10	.94
Prescriber Initial Communication Style					.29	.11	.27	2.7**	.29	.11	.27	2.6**
Pharmacist Initial Communication Style					.03	.09	.03	.33	.03	.09	.03	.33
Knowledge Index									-.00	.13	-.00	-.01
F-ratio	1.1				2.1*				1.8*			
R-square	.07				.18				.18			
R-square (adj)	.00				.09				.08			

\*p<.05 \*\*p<.01 \*\*\*p<.001

Value. The standardized estimates show that household income, initial depression symptoms and previous antidepressant use contributed most to the equation. However, the f-value indicates the background factors are not useful in predicting consumers' medication beliefs.

The second regression equation explains nine percent of the variation in Anticipated Value of antidepressant use. Prescriber Initial Communication Style is significant in predicting a positive anticipated value of antidepressant medication (beta = .27,  $p < .01$ ). Approachable and informative prescribers impact consumer beliefs about antidepressant medication while controlling for age, gender, college education, household income, type of antidepressant prescribed, severity of depression, previous use and pharmacist approachability and informative style.

Results of the final regression of the seven background factors and the three treatment process variables predicting anticipated value antidepressants are presented in the far right columns of Table 9. The only variable that contributed a statistically significant amount is Prescriber Initial Communication Style (beta=.27,  $p < .01$ ). Eight percent of the variance in anticipated value of antidepressants is explained.

Approachable and informative prescribers contribute to a positive anticipated value of antidepressant use when controlling for consumer background factors, pharmacist communication style, and knowledge of antidepressant use.

#### D. SUMMARY

This completes the presentation and analysis of data collected during the initial interviews. The goals included describing the study sample and then examining the extent to which prescribers' and pharmacists' initial communication styles influenced consumer anticipated value of antidepressant use.

The consumer sample is drawn from twenty-three community pharmacies located in Dane County. One hundred study participants completed two telephone interviews separated by at least two months. The average age of the mostly white female sample is 36 years. The sample is predominantly well educated, middle class and has health insurance. Fifty-nine percent are taking antidepressants for the first time. The sample reported moderate depressive symptoms prior to starting antidepressant treatment.

Prescribers are generally rated high in approachable and informative communication style. Specifically, prescribers are

rated lowest in giving a clear explanation of what to expect when taking the antidepressant. However, prescribers received high ratings in being friendly, asking about concerns and listening to consumers.

Pharmacists are not rated highly in approachable and informative communication style. Pharmacists received highest ratings for giving clear instructions on how to take the antidepressant. Lowest ratings were reported for giving a clear explanation of what to expect when taking the antidepressant and helping with consumer concerns.

Consumers are fairly knowledgeable about the antidepressant, regimen and management. Specifically, consumers are aware of side effects, how antidepressants are believed to work, and when clinical effects of antidepressants occur. In addition, consumers were quite knowledgeable about when to take the antidepressant and number of daily doses. Forty-six percent were unaware of the intended length of treatment.

On average, consumers anticipate antidepressants to be useful in treating depression. In particular, consumers believe the antidepressant prescription is a good option for them. Forty percent believe antidepressants are necessary in

overcoming depression. Fifty-one percent believe side effects will not be bothersome.

The bivariate correlations indicate a strong relationship exists between consumer perceptions of their prescribers' initial communication style and initial beliefs about the antidepressant. Consumers perceiving their prescribers to be approachable and informative know more about their antidepressant regimen and anticipate positive results from the antidepressant treatment.

Results from the regression analysis suggest that consumer background and clinical factors are not influencing anticipated value of antidepressant medication. Prescriber Initial Communication Style is significant in predicting consumer attitude toward antidepressant use. Pharmacist Initial Communication Style and Knowledge Index of the medication and regimen do not influence consumer initial beliefs concerning antidepressant treatment.

This regression analysis supports the study hypotheses that health care providers exhibiting an approachable and informative communication style are positively associated with consumer beliefs about their antidepressant medication treatment. Although the variance in Anticipated Value was not

great, Prescriber Initial Communication Style was a significant predictor in the regression models and increased the variance in consumer initial beliefs from one percent to nine percent.

The next chapter presents consumer perceptions of prescriber and pharmacist follow-up communication style and medication evaluation. Data are presented and analyzed in the same manner as with the initial interview findings. The extent to which consumer perceptions of follow-up with prescribers and pharmacists influence beliefs about antidepressant use are examined.

## CHAPTER SIX

FOLLOW-UP TREATMENT PROCESS:  
PRESCRIBER AND PHARMACIST COMMUNICATION STYLES  
AND EVALUATION OF ANTIDEPRESSANT USE

Data measuring consumer perceptions concerning the follow-up visits with their prescriber and pharmacist and consumer evaluation of antidepressant medication use are presented. The data were obtained from telephone interviews with consumers at least two months after they started antidepressant medication treatment. The data are quantitative with some quotations presented sharing consumer experiences and thoughts concerning their treatment process.

This portion of the analysis establishes the extent to which a relationship exists between consumer perceptions of prescriber follow-up communication style, pharmacist follow-up communication style and evaluation of antidepressant medication use. The chapter is a continuation of the process concerned with establishing that prescribers' and pharmacists' communication styles influence consumer beliefs about their medication treatment. The study model is tested by regressing consumer background factors, clinical factors, initial treatment process variables and follow-up treatment process variables onto consumer evaluation of medication use.

The goal of this chapter is to examine the nature of the relationship between provider communication styles and consumer beliefs about their medication. It is hypothesized that provider follow-up communication style influences consumer evaluation of medication use. Later chapters will investigate relationships between consumer beliefs, consumer behavior and clinical outcome.

#### A. FOLLOW-UP WITH PROVIDERS

##### A.1 Consumer Perceptions of Prescriber Follow-up

During the second interview consumers were asked about follow-up contact with their prescriber. Prescriber follow-up was rated on a zero to four scale. Zero represents no follow-up between consumer and prescriber and prescriber did not suggest a follow-up visit. One point represents no follow-up although prescriber suggested there be a follow-up visit. Two points represent that a follow-up visit occurred with minimum participatory manner and monitoring behaviors perceived by the consumer. Participatory manner and monitoring behaviors are defined by consumer ratings of prescriber behavior during the follow-up interview. A point for demonstrating participatory manner was scored when consumers evaluated prescribers with agree or strongly agree for all four participatory manner

items, this is considered strong participatory manner. Similarly, a point for demonstrating monitoring behavior was scored when consumers evaluated prescribers as having asked all four monitoring items.

In the cases where prescribers did not receive points for participatory manner or monitoring behaviors, follow-up is coded as minimum or with two points. Three points are scored when the consumer ranks the prescriber as exhibiting either a strong participatory manner in problem solving or a strong monitoring style. Four points are scored when the consumer ranks the prescriber as exhibiting both a strong participatory manner in problem solving and a strong monitoring style. Prescriber follow-up is presented in Table 10.

Thirteen consumers did not have contact by telephone or in person with the prescriber after the original visit. The antidepressant medication and depression were not discussed again by the consumer and prescriber. Seven study participants reported that no follow-up plans were discussed with the prescriber. However, their prescriptions had refills so that they could continue medication use. Six consumers did not have a follow-up visit with their prescriber but reported that their doctor had suggested a follow-up visit be scheduled. One

Table 10: Follow-up with prescriber

Level of follow-up with prescriber	Percent (N)
0=No follow-up plan	7.0 (7)
1=No follow-up with prescriber but it was suggested	6.0 (6)
2=Minimal follow-up contact with prescriber. Scores measuring participatory manner in problem solving were less than agree or strongly agree. All medication monitoring questions were not asked.	17.0 (17)
3=Follow-up with prescriber exhibiting either a strong participatory manner in problem solving or a strong medication monitoring behavior.	23.0 (23)
4=Follow-up with prescriber exhibiting strong participatory manner in problem solving and strong medication monitoring behavior.	47.0 (47)
Total	100.0 (100)

consumer had a visit with her prescriber for a follow-up concerning a separate chronic medical issue and was asked one question about the antidepressant.

Eighty-seven consumers did have a follow-up visit with the prescriber<sup>1</sup>. Seventeen percent had contact with the prescriber again but rated their prescribers as using minimal participatory manner and monitoring behavior. Twenty-three consumers reported their prescriber as exhibiting either a strong monitoring style or a strong participatory manner in problem solving. Forty-seven consumers reported that their prescriber asked all four monitoring items and expressed a strong participatory manner in problem solving.

#### A.2 Prescriber Follow-up Communication Style

Consumer perceptions of their prescribers' follow-up communication style during the interaction following the original prescribing of the antidepressant are presented in Table 11. The first four Likert type items rate the prescriber's participatory manner in problem solving. Higher scores indicate that consumers perceive prescribers higher in participatory manner. The final four yes-no items rate the

---

<sup>1</sup>One consumer had the follow-up visit with a drug counselor located in the same office as the prescriber.

Table 11: Prescriber follow-up communication style

Category	Frequency (Percent)	Mean (SD)
Encourages expression of problems		4.4 (.97)
Strongly Disagree = 1	1 (1.2)	
Disagree = 2	7 (8.1)	
Neither = 3	3 (3.5)	
Agree = 4	22 (25.6)	
Strongly Agree = 5	53 (61.6)	
Not Applicable	14	
Asks about concerns		4.4 (.90)
Strongly Disagree = 1	0 (0)	
Disagree = 2	7 (8.1)	
Neither = 3	3 (3.5)	
Agree = 4	26 (30.2)	
Strongly Agree = 5	50 (58.1)	
Not Applicable	14	
Listens to your concerns		4.5 (.92)
Strongly Disagree = 1	2 (2.3)	
Disagree = 2	4 (4.7)	
Neither = 3	1 (1.2)	
Agree = 4	23 (26.7)	
Strongly Agree = 5	56 (65.1)	
Not Applicable	14	
Helped solve problems		4.2 (1.0)
Strongly Disagree = 1	3 (3.5)	
Disagree = 2	4 (4.7)	
Neither = 3	8 (9.3)	
Agree = 4	33 (38.4)	
Strongly Agree = 5	38 (44.2)	
Not Applicable	14	
Asked how antidepressant was working		0.96 (.19)
No = 0	3 (3.5)	
Yes = 1	82 (96.5)	
Not Applicable	15	
Asked how you were taking antidepressant		0.85 (.36)
No = 0	13 (15.5)	
Yes = 1	71 (84.5)	
Not Applicable	16	
Asked if you experienced side effects		0.85 (.36)
No = 0	13 (15.5)	
Yes = 1	71 (84.5)	
Not Applicable	16	
Asked if you were having problems		0.79 (.41)
No = 0	18 (21.4)	
Yes = 1	66 (78.6)	
Not Applicable	16	
Follow-up Score Range	10 - 24	20.9(3.4)
Cronbach Alpha	.74	

prescribers' monitoring behavior. Items are scored one point when the consumer perceived that the prescriber asked the monitoring question. The possible range is four to 24. The sample range for 84 consumers is 10 to 24 with an average score of 20.9. Overall, the prescribers were rated high in their follow-up communication style. The frequency distribution appears in Appendix G.

Prescriber participatory manner in problem solving was evaluated by 86 participants. Monitoring style is evaluated by 84 consumers because two consumers who telephoned their prescriber to let them know they were discontinuing medication use discussed concerns but did not recall answering any "monitoring" type questions at that time. The monitoring item "how does (antidepressant) work for you?" was evaluated by 85 consumers because one participant was asked this question when she saw her doctor for another reason at the clinic. Other than being asked that question, she did not have a follow-up visit with her doctor.

Prescribers were rated high in participatory manner in problem solving. More than 80 percent of the consumers ranked their prescribers with a positive response (agree or strongly agree) when asked if the prescriber: 1) encourages them to

express concerns or problems with taking the antidepressant; 2) asks if they have questions or concerns about the antidepressant; 3) listens to their concerns about the antidepressant; and 4) helps solve problems related to antidepressant medication.

Prescribers were rated high in their monitoring behavior. Ninety-six percent of consumers reporting about prescriber follow-up said that prescribers asked, "how the antidepressant was working." In addition, 85 percent of prescribers monitored for side effects and medication compliance. Consumers reported that prescribers asked, "are you having other problems with the antidepressant?" the least often, yet 79 percent of prescribers were reported to have asked this monitoring item.

Follow-up Prescriber Communication Style is rated highly by the study sample. The high ratings are somewhat difficult to believe. It is tempting to believe consumers have overestimated prescriber follow-up behavior. The literature indicates that consumers tend to rate their own prescribers more highly than prescribers in general. This is also the case with "satisfaction research." Consumers tend to report satisfaction with their doctor while not expecting very high standards of practice. It is possible that prescribers

represented in this study exhibit strong communication styles. This could occur because of the professional environment which includes a University, medical school and research and teaching hospital.

The next section presents pharmacist follow-up communication style. Consumers do not rate their pharmacists as highly as their prescribers.

### A.3 Consumer Perceptions of Pharmacist Follow-up

Seventeen consumers had no further contact with a pharmacist concerning their antidepressant medication. No phone conversations or face-to-face contact followed the original dispensing of the prescription. Two participants had family members pick up their prescription and another participant had her prescriptions delivered, therefore three consumers did not follow-up with their pharmacist although they continued taking the antidepressant. One consumer never talked with his pharmacists about the antidepressant because he had received a sample package from the doctor and never felt inclined to discuss the medication with a pharmacist.

Forty-six consumers refilled the prescription and had contact with a pharmacist but did not perceive the pharmacist as exhibiting strong levels of participatory manner in problem

solving or monitoring behavior. Strong participatory manner is defined as consumers respond with agree or strongly agree to all four participatory manner questions. Strong monitoring style is defined as consumers respond yes to at least two pharmacist monitoring items. Twenty-eight consumers rated their pharmacists as having a strong participatory manner or a strong monitoring behavior in follow-up and eight consumers rated their pharmacists as having strong participatory manner in problem solving and strong monitoring behavior.

Overall, consumers did not report their pharmacist follow-up as thorough. Pharmacist follow-up was rated on a zero to three scale. Zero represents no further contact with a pharmacist. One point represents minimal contact, neither strong participatory manner in problem solving nor monitoring behaviors were exhibited by the pharmacist. Two points represents follow-up contact with a strong participatory manner in problem solving or a strong monitoring behavior exhibited by the pharmacist. Three points represent the highest level of follow-up, that is, the consumer perceived the pharmacist to have exhibited a strong participatory manner in problem solving and a strong monitoring behavior. The distribution is presented in Table 12.

Table 12 Follow-up with pharmacist

Level of follow-up with pharmacist	Percent (N)
0=No further contact with a pharmacist.	18.0 (18)
1=Minimal follow-up contact with pharmacist. Scores measuring participatory manner were less than agree or strongly agree. Less than two medication monitoring questions were asked.	46.0 (46)
2=Follow-up with pharmacist exhibiting strong participatory manner in problem solving or strong medication monitoring behavior.	28.0 (28)
3=Follow-up with pharmacist exhibiting strong participatory manner in problem solving and strong medication monitoring behavior.	8.0 (8)
Total	100.0 (100)

#### A.4 Pharmacist Follow-up Communication Style

Seventeen consumers did not interact with a pharmacist after starting the antidepressant medication. Therefore, 83 consumers evaluated their Pharmacist Follow-up Communication Style. Most of the 83 consumers returned to the same pharmacy. However, they did not necessarily talk with the same pharmacist. Family members picked up prescription refills for two participants and another participant had her prescriptions delivered. Therefore three consumers continuing treatment did not have follow-up contact with a pharmacist.

Consumer perceptions of their pharmacists' follow-up communication style are presented in Table 13. The same items measuring participatory manner in problem solving and monitoring behavior for prescribers were asked for measuring pharmacist follow-up communication style. The items measuring participatory manner in problem solving are: 1) encourages (me) to express concerns or problems with taking the antidepressant; 2) asks if (I) have questions or concerns about the antidepressant; 3) listens to (my) concerns about the antidepressant; and 4) helps (me) solve problems related to the antidepressant medication. The monitoring items are: 1) asked how (antidepressant) is working for you; 2) asked how you are

Table 13: Pharmacist follow-up communication style (N=83)

Category	Frequency (Percent)	Mean (SD)
Encourages expression of problems		3.7 (.1.2)
Strongly Disagree = 1	4 (4.8)	
Disagree = 2	10 (12.0)	
Neither = 3	16 (19.3)	
Agree = 4	29 (34.9)	
Strongly Agree = 5	24 (28.9)	
Asks about concerns		4.4 (.96)
Strongly Disagree = 1	2 (2.4)	
Disagree = 2	5 (6.0)	
Neither = 3	1 (1.2)	
Agree = 4	27 (32.5)	
Strongly Agree = 5	48 (57.8)	
Listens to your concerns		4.0 (.92)
Strongly Disagree = 1	1 (1.2)	
Disagree = 2	1 (1.2)	
Neither = 3	27 (32.5)	
Agree = 4	25 (30.1)	
Strongly Agree = 5	29 (34.9)	
Helped solve problems		3.4 (1.1)
Strongly Disagree = 1	6 (7.2)	
Disagree = 2	3 (3.6)	
Neither = 3	42 (50.6)	
Agree = 4	16 (19.3)	
Strongly Agree = 5	16 (19.3)	
Asked how antidepressant was working		0.34 (.48)
No = 0	55 (66.3)	
Yes = 1	28 (33.7)	
Asked how you were taking antidepressant		0.25 (.44)
No = 0	62 (74.7)	
Yes = 1	21 (25.3)	
Asked if you experienced side effects		0.27 (.44)
No = 0	61 (73.5)	
Yes = 1	22 (26.5)	
Asked if you were having problems		0.36 (.48)
No = 0	53 (63.9)	
Yes = 1	30 (36.1)	
Follow-up Score Range	4 - 24	16.7 (4.2)
Cronbach Alpha	.84	

taking (antidepressant); 3) asked if you experienced any side effects; and 4) asked if you are having any other problems. The frequency distribution appears in Appendix G.

Pharmacists were not rated highly in participatory manner in problem solving. Consumers perceived their pharmacists to be highest for item two, "the pharmacist asks about concerns related to the antidepressant." Ninety percent of the sample who had contact with their pharmacist in follow-up said they were asked about medication concerns. Pharmacists were less likely to encourage consumers to express prescription problems. Approximately sixty-four percent of the sample agreed or strongly agreed with that statement. Similarly, 65 percent of the sample agreed with the statement, "the pharmacist listens to your concerns." Nearly 33 percent gave a neutral response which may reflect the concept that a pharmacist cannot listen if the consumer does not talk about concerns. Pharmacists were least likely to help solve problems. Only thirty-nine percent of the sample agreed with the statement, "the pharmacist helped solve problems related to the antidepressant." Fifty percent of the sample "neither agreed nor disagreed" with the statement which probably reflects consumer unwillingness to share prescription problems with their pharmacist.

Pharmacists were not rated highly in monitoring behavior. Consumers believed their pharmacists asked the following two items most, "how is the antidepressant working for you?" and "are you having any other problems?" However, at 34 and 36 percent respectively, pharmacists were not monitoring medication use to a great extent. Monitoring questions concerning adherence with directions and directly asking about side effects were asked by about one-quarter of the pharmacists.

Consumers summarized their experiences with pharmacists differently. One satisfied respondent (score=18) explained how his pharmacists help him. Consumer #20108 said,

"They ask if the prescription is new. When it is a new prescription, they are really informative. Otherwise, they know I will ask if I have a problem."

Similarly Consumer #10707 (score=14) described the pharmacist interaction when refilling her prescription this way:

"I know if I'd ask they would tell me. I did not want to take a lot of time when I refilled my prescription."

Consumer #20701 (score=4) answered every item of the Pharmacist Follow-up Communication Style scale negatively and then said:

"She only talked about the problems with my insurance."

A comparison of the prescriber follow-up communication scores and the pharmacist follow-up communication scores show that prescribers outscore pharmacists in participatory manner in problem solving and monitoring medication use. A positive reaction to this finding is that consumers distinguish between prescriber and pharmacist communication. Therefore it is noted, that consumers' evaluation of prescriber communication styles cannot be discounted as simply overestimates of the actual interaction. Consumers may evaluate prescriber communication style highly but if a halo effect exists, it does not occur in the case of evaluating pharmacist communication.

Pharmacists, educators and policy makers should take notice of the poor communication occurring between consumers and pharmacists during follow-up. The data suggest that consumers do not want to ask pharmacists for help with antidepressant concerns. Perhaps the lack of privacy in the community pharmacy setting inhibits consumers from sharing medication concerns with pharmacists. Perhaps a certain type of relationship is necessary before good communication between consumers and pharmacists will occur. Perhaps consumers have turned to other people to discuss medication concerns. Perhaps pharmacists feel awkward discussing depression and treatment

with consumers. Perhaps the lack of consistency in seeing the same pharmacist with each visit inhibits consumer-pharmacist communication. Although pharmacists may try to communicate with consumers, the lack of knowledge about what has been previously discussed with other pharmacists and providers, reduces the likelihood of useful communication to occur. The pharmacist-consumer relationship may be inhibited for many reasons.

#### B. Consumer Evaluation of Antidepressant Use

Overall, consumers evaluated their antidepressant use positively. On average, they felt better *some of the time* and were bothered by the medication *a little of the time*. When asked about satisfaction with treatment, consumers responded with *somewhat satisfied*. The medication evaluation scores are presented in Table 14. Consumer scores evaluating antidepressant use ranged from three to 13. The average score is 10.5. The frequency distribution appears in Appendix G.

Fifty-seven percent responded that they felt better *a lot of the time* since taking the medication. Another thirty percent felt better *some of the time*. Thirteen participants felt better *a little or none of the time* while taking the antidepressants. Therefore, 87 percent of consumers evaluated

Table 14: Consumer evaluation of antidepressant use (N=100)

Variable	Percent
<b>Since taking antidepressant(I)feel better</b>	
None of the time = 1	6
A little of the time = 2	7
Some of the time = 3	30
A lot of the time = 4	57
Mean (SD)	3.4 (.86)
<b>Antidepressant bothers me</b>	
A lot of the time = 1	10
Some of the time = 2	17
A little of the time = 3	33
None of the time = 4	40
Mean (SD)	3.0 (.99)
<b>Satisfaction with overall experience of antidepressant</b>	
Very dissatisfied = 1	5
Somewhat dissatisfied = 2	8
Neither = 3	12
Somewhat satisfied = 4	28
Very satisfied = 5	47
Mean (SD)	4.0 (1.2)
<b>Medication Evaluation Score</b>	
Range	3 - 13
Mean (SD)	10.5 (2.6)
Cronbach Alpha	.81

antidepressant use as positively influencing how they felt. As previous research indicates, depression is treatable with antidepressant medication.

Seventy-three percent of consumers said the antidepressants bothered them *none of the time* to a little of the time. Seventeen participants found the antidepressants bothered them *some of the time*. Ten participants found the antidepressants bothered them *a lot of the time*.

Seventy-five percent were *satisfied* with their overall experience in taking antidepressant medication. Twelve percent of consumers were *neither satisfied nor dissatisfied* and 13 percent of consumers were *dissatisfied* with their antidepressant.

During this part of the interview consumers made additional comments revealing how the medication worked for them. Responses ranged from very positive to very negative. Examples of evaluations expressing the positive effects consumers noted are presented first.

"I think Zoloft is giving me the ability to handle things better. It helps me cope with friends and family dying, having cancer, and my daughter's troubles. I'm no longer just retreating into my room" (Consumer #10401).

Similarly, Consumer #14702 reported that taking Prozac improved his treatment goals by controlling mood swings, reducing his irritability and increasing his ability to concentrate. He believed the Prozac made it easier for other behavioral strategies to be effective.

Consumers also found the antidepressant medication was not that helpful. One consumer reported no changes in his treatment goals. He continued to not feel interest in things, the communication line with his wife did not improve and his depression continued. He expressed it this way,

"I think Zoloft is calming but not that much has changed" (Consumer #13108).

While one participant found the amitriptyline effective in helping her sleep, feeling less irritable, less depressed as well as reducing her shoulder pain, she did not like the side effects. She found herself desiring to eat all day which she attributed to the medication. She could not tolerate the food cravings and so discontinued medication use.

"My mood in general is not as good now as when I took the amitriptyline. I would consider taking another if the eating side effect would not occur. It made the treatment intolerable" (Consumer 20101).

One consumer really debated with herself about taking an antidepressant for her depression before she received her first

prescription. After one dose, she found the physical side effects undesirable and so decided to try other treatment techniques and not take the medication.

"I was looking for the medication to help me cope. It freed me to work on my depression by myself. It has been fine. I wanted to lean on medication and then when I couldn't, I worked it out" (Consumer #12404).

This last remark indicates that consumers consider the physical effects of the medication as well as the personal meaning of taking antidepressant medication when evaluating use. Social norms continue to suggest we struggle through difficult times in order to build character and not show that we are mentally weak. Social stigma concerning treatment of mental health issues and pressure individuals apply to themselves continue to make taking antidepressants a difficult decision for people.

#### C. BIVARIATE RESULTS

The relationships between the variables addressed so far are presented in Table 15 with Pearson Correlation coefficients. First, the correlations are examined between consumer background factors and follow up treatment process factors. Second, relationships between initial treatment process factors and follow-up provider factors are reviewed.

Table 15: Correlation coefficients for consumer background factors and treatment process variables initial and follow-up

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age (18-84)	-												
2. Gender (Male=1)	.07	-											
3. College Education (Yes=1)	-.13	-.01	-										
4. Household Income (6500-150000)	.19	-.13	.13	-									
5. Depression Symptoms Initial (17-48)	-.45 ***	-.16	-.01	-.05	-								
6. Previously Taken Antidepressants (Yes=1)	-.02	.01	-.02	-.21*	.09	-							
7. SSRI Type Antidepressant Follow-up (Yes=1)	.10	-.14	-.08	.11	-.12	-.17	-						
8. Prescriber Initial Communication Style (3-18)	-.19	-.00	.06	.12	.21*	.05	-.00	-					
9. Pharmacist Initial Communication Style (2-18)	-.05	-.07	-.01	-.18	-.02	-.11	-.01	.01	-				
10. Knowledge Index (0-12)	-.24*	-.00	.33 ***	.08	.12	-.16	-.01	.24*	-.10	-			
11. Anticipated Value (13-29)	-.08	-.04	-.10	.08	.17	.13	.11	.31 ***	-.01	-.01	-		
12. Prescriber Follow-up (0-4)	-.07	.03	.00	-.00	.20*	-.01	-.13	.43 ***	.06	.19*	.23*	-	
13. Pharmacist Follow-up (0-3)	-.13	-.12	-.02	-.15	.12	-.09	-.11	.22*	.16	.19*	.07	.37 ***	-
14. Evaluation of Antidepressant Use (3-13)	-.10	-.03	-.12	.06	.20*	-.15	.05	.32 ***	-.03	.17	.55 ***	.26 **	.25 **

\* p<.05 \*\* p<.01 \*\*\* p<.001

Finally, the bivariate analysis is completed with the review of correlations among all independent variables and consumer evaluation of antidepressant use.

A review of the correlation coefficients between consumer background factors and follow-up treatment process factors results in one significant relationship. Initial depression symptoms are significantly related to prescriber follow-up ( $r=.20, p<.05$ ). Consumers experiencing more initial depression symptoms perceived a higher level of Prescriber Follow-up than individuals with fewer depression symptoms.

Considering the emotional pain, despair and risk of suicide experienced by individuals with moderate to severe depression it is hoped this bivariate relationship means these individuals are receiving a higher level of prescriber follow-up after the antidepressant is prescribed. However, the poor self image that often accompanies depression could influence participant responses. Individuals with depression may evaluate their prescribers with higher praise than reasonable as a result of their own poor feelings of self worth.

The second step of the bivariate analysis compares correlation coefficients between initial and follow-up treatment process variables. These data show that Prescriber

Initial Communication Style is positively correlated with Prescriber Follow-up. Consumers rating their Prescriber Initial Communication Style high were likely to rate their Prescriber Follow-up high ( $r=.43$ ,  $p<.001$ ). Prescribers perceived as approachable and informative initially are perceived as having a participatory manner in problem solving and as closely monitoring medication use in follow-up. This finding is expected for a number of reasons. First, the items measuring initial communication style and follow-up communication style are somewhat similar in nature. Second, prescribers who are approachable initially, are friendly, ask about consumer concerns and help consumers define a treatment plan. Prescribers, who monitor medication use and treatment outcomes during a follow-up encounter, are asking about consumer concerns and how consumers feel. Third, the assumption is implicit in the research model that if a prescriber has a communication style, it will be reflected across patients, situations and time.

Prescriber Initial Communication Style is positively correlated with Pharmacist Follow-up ( $r=.22$ ,  $p<.05$ ). It is possible that prescribers with an approachable and informative communication style influence consumer use of antidepressants

so that consumers see the pharmacist again when refilling the prescription. Then, it is possible that prescribers with a poor communication style initially influence consumers to discontinue the antidepressant. Therefore, consumers do not communicate again with the pharmacist. The finding suggests that initial prescriber communication style influences the treatment process.

The positive correlation between Prescriber Initial Communication Style and Pharmacist Follow-up seems likely to be a reflection of good initial prescriber communication style leading to consumers' continued use of the antidepressant. Pharmacists have follow-up contact with consumers when prescriptions are refilled. The pharmacist-consumer interaction measured as Pharmacist Follow-up is not perceived as particularly high in problem solving or monitoring medication use by study participants. The correlation seems to simply reflect that consumers had face-to-face contact with the pharmacist when refilling prescriptions.

Pharmacist Initial Communication Style is not correlated with Pharmacist Follow-up. This finding could be the result of seeing different pharmacists initially and in follow-up. Consumers often returned to the same pharmacy but did not

always talk with the same pharmacist when refilling the prescription. However, the lack of variability measured in Pharmacist Follow-up reduces the likelihood for a correlation between Pharmacist Initial Communication Style and Pharmacist Follow-up. Pharmacists received low scores in follow-up. Communication was not good between consumers and pharmacists.

Minimum practice standards dictate that pharmacists give consumers information about the medication when dispensing the original prescription and all refills. Pharmacists are not mandated to ask consumers any questions about the medication. Therefore, pharmacists are not mandated to ask how the medication is working, how the medication is taken, about side effects or other monitoring items. While mandated to give information with each prescription dispensed, reasonable practicing pharmacists see the problem with giving information about how to take the medication each time since consumers picking up refill prescriptions have been taking the medication. The data indicate the practice norm is to do nothing when dispensing antidepressant refills. Many pharmacists suggested when the study began that discussing depression and antidepressant treatment is a sensitive topic and not easily addressed in the community pharmacy environment.

The measure of consumer knowledge pertaining to antidepressant medication and use, Knowledge Index, is positively correlated with Prescriber Follow-up ( $r=.19$ ,  $p<.05$ ) and Pharmacist Follow-up ( $r=.19$ ,  $p<.05$ ). This finding suggests that consumers with greater knowledge concerning their antidepressant have a more thorough follow-up with their health care providers. These data support the belief that consumers with greater knowledge concerning their antidepressant are more likely to ask health care providers questions and participate more fully in a dialog concerning the medication during follow-up visits with prescribers and pharmacists. However, these correlations are not so strong. It is possible that consumers with sufficient information about their medication continue the treatment. Therefore, the consumer has follow-up encounters with the prescriber and the pharmacist.

Consumer initial beliefs concerning antidepressant medication and use is measured as Anticipated Value of antidepressants. Anticipated Value is positively correlated with Prescriber Follow-up ( $r=.23$ ,  $p<.05$ ). Positive anticipated value of antidepressants is related to communicative prescribers during the follow-up encounter. Consumers tend to rate their prescribers high in participatory problem solving

and monitoring behaviors when they hold positive initial beliefs about their medication. In Chapter 5 data were presented showing a positive relationship between consumer rating of Prescriber Initial Communication Style and Anticipated Value of antidepressants. Consumers perceiving prescribers as informative and approachable rated antidepressant use as more valuable than consumers perceiving prescribers lower in initial communication style. This chapter suggests that positive anticipatory beliefs about treatment relates to follow-up encounters. Consumers who believe in the treatment initially have communicative prescribers during the follow-up encounter. These findings could support the causal direction of Prescriber Initial Communication Style leads to Anticipated Value of antidepressant use which, in turn, leads to Prescriber Follow-up. Alternatively, consumers who anticipate medication use as valuable may choose a provider with certain qualities that include good communication style such as being informative, approachable, using a participatory manner in problem solving, and monitoring medication treatment. However, it is important to keep in mind that the sample is largely insured by Health Maintenance Organizations and therefore choice of prescribers is limited.

Prescriber follow-up and pharmacist follow-up are positively related to each other ( $r=.37$ ,  $p<.001$ ). Consumers rating prescriber follow-up high are continuing the treatment and returning to pharmacies for medication refills.

Consumer evaluation of antidepressant use is not related to pharmacist follow-up. This finding is similar to the results presented in Chapter Five. That is, Pharmacist Initial Communication Style is not related to anticipated value of antidepressant treatment. Pharmacist communication style is not related to consumer beliefs about medication.

The final steps of the bivariate analysis reviews the correlations between consumer background factors, initial treatment process variables, follow-up treatment process variables and the dependent variable, Evaluation of Antidepressant Use. Variables related to Evaluation of Antidepressant Use include Depression Symptoms Initially, Prescriber Initial Communication Style, Knowledge Index, Anticipated Value of Antidepressants, Prescriber Follow-up and Pharmacist Follow-up.

Consumers experiencing more initial depression symptoms tended to evaluate antidepressant use more positively ( $r=.20$ ,  $p<.05$ ). These data suggest that clients with moderate to

severe depression gained more relief from the antidepressant than those with fewer depressive symptoms.

Perception of Prescriber Initial Communication Style is positively related to Evaluation of Antidepressant Use ( $r=.32$ ,  $p<.001$ ). Consumers who initially rate their prescribers as approachable and informative later evaluate their medication use positively. This finding suggests those initial experiences with the prescriber directly or indirectly influence consumer perceptions of treatment effect.

A weak correlation exists between consumer knowledge of antidepressant use and their evaluation of medication effect ( $r=.17$ ,  $p<.05$ ). Clients with greater knowledge concerning the antidepressant regimen tend to report more positive effects of the antidepressant. Perhaps this relation is prominent for one aspect of knowledge concerning antidepressant use. The researcher reviewed the correlation matrix of the components of the summary Knowledge Index score and evaluation of antidepressant use. No single item is significantly correlated with evaluation of antidepressant use, however, consumer knowledge of the mechanism of drug action has the greatest relationship to evaluation of antidepressant use ( $r=.14$ ,  $p=.15$ ).

Consumers who anticipate that antidepressant treatment will be useful are likely to evaluate their experience with antidepressant medication use positively ( $r=.55$ ,  $p<.001$ ). This is the strongest bivariate relationship existing between the treatment process variables. Consumers believing the risks of side effects are less important than the potential treatment benefits tend to report positive results from the medication after using it.

Prescriber and Pharmacist Follow-up are positively related to client evaluation of antidepressant use ( $r=.26$ ,  $p<.01$  and  $r=.25$ ,  $p<.01$ , respectively). Consumers perceiving their prescribers and pharmacists as showing a high level of participatory manner in problem solving and monitoring medication use during follow-up evaluate their antidepressant use positively. These data support the research theory proposed that improved communication between the health care providers and the consumers would enhance client evaluation of medication use. Another explanation could be that consumers who find the medication useful return to their prescriber and pharmacist in order to continue medication use. If this were the case, then the correlations are an artifact of the process

consumers must follow in order to obtain a medication refill. Correlations do not allow for causal inference.

In summary, consumers likely to evaluate antidepressant use positively experience worse depression symptoms initially, have greater knowledge about antidepressants and their use, anticipate positive effects from antidepressants initially, evaluate their pharmacists' follow-up communication style positively and evaluate their prescribers' initial and follow-up communication styles high.

#### D. MULTIVARIATE ANALYSIS

Consumers taking antidepressants for the first time, anticipating positive effects from antidepressants initially and perceiving their pharmacists as using good follow-up protocol are likely to evaluate their antidepressant use positively. These findings are now presented using regression analysis. The analysis tests the extent to which consumer background factors and treatment process variables predict the 2-month evaluation of antidepressant medication use.

In order to determine which set of variables contributes most to the model equation, the hierarchical regression analysis was completed in steps. The first regression was run with consumer background factors: age, gender, college

education, household income, initial depression symptoms, previous antidepressant use, and type of antidepressant prescribed. The background factors were regressed onto the dependent variable, evaluation of antidepressant use. Then, initial treatment process variables, Prescriber Initial Communication Style and Pharmacist Initial Communication Style were added to the equation. Next, Knowledge Index and Anticipated Value of antidepressants were added to the equation. The final step was to include Prescriber Follow-up and Pharmacist Follow-up in the regression equation and compute a backward elimination procedure to determine which variables contribute most to the positive evaluation of antidepressant medication use.

Results of regressing the background factors onto evaluation of antidepressant use show that no background factors are significant in predicting a positive evaluation of antidepressant use. The overall regression equation explained 2 percent of the variance (adjusted R-square). The standardized estimates indicated that initial depression symptoms and previous antidepressant use contributed most to the equation.

The addition of the Prescriber Initial Communication Style and Pharmacist Initial Communication Style improved the equation so that 9 percent of the variation is explained (adjusted R-square). Prescriber Initial Communication Style ( $\beta=.30$ ,  $p<.01$ ) contributed most to consumer evaluation of antidepressant use. Regression results are presented in Table 16.

Regression results were greatly improved by the addition of Knowledge Index and Anticipated Value. The eleven variable equation explains 33 percent of the variation in consumer evaluation of antidepressant use (adjusted R-square). Anticipated Value contributed most to the equation ( $\beta=.51$ ,  $p<.001$ ). Previous antidepressant use also contributed significantly to the equation ( $\beta=-.22$ ,  $p<.05$ ). Results of the regression are presented in the middle columns of Table 16.

Although not statistically significant, additional contributions to the model were made by Prescriber Initial Communication Style ( $\beta=.14$ ) and Knowledge Index ( $\beta = .14$ ). The contribution of Prescriber Initial Communication Style was reduced when Knowledge Index and Anticipated Value were added to the equation, as is expected based on the

Table 16: Multiple regression equations of background factors and treatment process variables predicting consumer evaluation of antidepressant use

Variable	b	SE	beta	t	b	SE	beta	t	b	SE	beta	t
intercept	6.0	2.6	.00	2.3*	-.53	2.5	.00	-.21	.63	1.4	.00	.45
Age	-.01	.02	-.03	-.26	.01	.02	.03	.29				
Gender	-.18	.61	-.03	-.30	-.13	.53	-.02	-.25				
College Education	-.75	.58	-.13	-1.3	-.62	.52	-.11	-1.2				
Household Income	.00	.00	.02	.21	-.00	.00	-.05	-.52				
Depression Symptoms Initial	.05	.04	.15	1.4	.03	.03	.09	.99				
Previously Taken	-.82	.54	-.16	-1.5	-1.2	.48	-.22	-2.4*	-1.0	.44	-.19	-2.3*
SSRI Type Antidepressant	.21	.61	.03	.35	-.24	.53	-.04	-.46				
Prescriber Initial Communication Style	.25	.08	.30	2.9**	.11	.08	.14	1.5				
Pharmacist Initial Communication Style	-.03	.07	-.04	-.38	-.03	.06	-.04	-.42				
Knowledge Index					.13	.09	.14	1.5				
Anticipated Value Antidepressants					.40	.07	.51	5.5***	.43	.06	.56	6.7***
Prescriber Follow-up												
Pharmacist Follow-up									.62	.25	.20	2.4*
F-ratio	2.1*				5.3***				19.1***			
R-square	.18				.41				.38			
R-square (adj)	.09				.33				.36			

\* p<.05 \*\* p<.01 \*\*\* p<.001

research model that prescribers contribute to consumer beliefs about medication treatment.

Thirteen independent variables were regressed onto consumer evaluation of antidepressant medication using a backward elimination process. Results of the final regression equation are presented in Table 16. An initial positive anticipated value of antidepressant use predicts a positive evaluation of medication use ( $\beta = .56, p < .001$ ). In addition, previous antidepressant use ( $\beta = -.19, p < .05$ ) and Pharmacist Follow-up ( $\beta = .20, p < .05$ ) predict a positive evaluation of medication use. This regression model is significant at the .001 level and explains 36 percent of the variation in consumer evaluation of antidepressant use.

The regression analysis was also completed using only clinical background factors and treatment process variables. The general background factors: age, gender, college education, and household income were removed from the regressions because they had not contributed significantly in previous regression analyses nor were they part of the original research theoretical model except as control factors.

Table 17 presents the results of the hierarchical regressions. Regressing Initial Depression Symptoms, Previous

Table 17: Multiple regression equations of clinical background factors and treatment process variables predicting consumer evaluation of antidepressant use

Variable	b	SE	beta	t	b	SE	beta	t	b	SE	beta	t
intercept	5.0	1.9	.00	2.6*	-.89	2.0	.00	-.46	-.69	1.9	.00	-.35
Depression Symptoms Initially	.06	.04	.18	1.8	.04	.03	.10	1.2	.03	.03	.09	1.1
Previously Taken	-.84	.52	-.16	-1.6	-1.1	.46	-.22	-2.5*	-1.0	.46	-.20	-2.3*
SSRI Type Antidepressant Follow-up	.25	.60	.04	.43	-.23	.52	-.04	-.45	-.11	.52	-.02	-.21
Prescriber Initial	.25	.08	.30	3.0**	.11	.08	.13	1.4	.08	.08	.09	.99
Pharmacist Initial	-.03	.07	-.04	-.39	-.02	.06	-.03	-.36	-.04	.06	-.06	-.67
Knowledge Index					.10	.08	.10	1.2	.07	.08	.08	.91
Anticipated Value Antidepressants					.40	.07	.52	5.8***	.40	.07	.51	5.6***
Prescriber Follow-up									.02	.21	.01	.08
Pharmacist Follow-up									.50	.28	.16	1.8*
F-ratio	3.4**				8.2***				6.9***			
R-square	.16				.39				.42			
R-square (adj)	.11				.35				.36			

\* p<.05 \*\* p<.01 \*\*\* p<.001

antidepressant use, SSRI type antidepressant resulted in a statistically significant equation. Prescriber Initial Communication Style contributed most to the equation which explained 11 percent of the variance in medication evaluation.

The addition of Knowledge Index and Anticipated Value of the antidepressant to the equation changed variable contributions. The contribution of Prescriber Initial Communication Style was reduced and Previous antidepressant use was enhanced. This is expected based on the research model that prescribers influence consumer medication beliefs and therefore the variables are related to each other and regression analysis often diffuses the variables strongly correlated to each other. At the same time, the contribution of Previous antidepressant use increases because consumer beliefs are influenced by previous experience but less so than prescriber style. This model explains 35 percent of the variation in evaluation of antidepressant use. Again, the greatest contribution is made by Anticipated Value ( $\beta = .52$ ,  $p < .001$ ).

A full regression of the clinical background factors and treatment process variables resulted in the same significant variable contributions as the backward elimination of all

variables. First time antidepressant use, a positive anticipated value of antidepressants initially and pharmacist follow-up contributed most to the model. Thirty-six percent of the variation in consumer evaluation of antidepressant use is explained by the nine variables. Results are presented in Table 17.

#### E. SUMMARY

This completes the presentation of data measuring consumer perceptions about their prescriber and pharmacist communication styles and antidepressant medication treatment. The goal was to examine the extent to which the prescribers' and pharmacists' initial and follow-up communication styles influenced consumer anticipated value of antidepressant treatment initially and evaluation of antidepressant use after taking the medication.

Almost fifty percent of consumers reported strong prescriber follow-up communication style. Prescribers used a participatory manner in problem solving and monitored medication use when consumers returned for a follow-up visit. Consumers report prescribers encouraged expression of problems and concerns in addition to listening to consumers during follow-up. Consumers report prescribers monitored medication

use by asking how the medication was working, how they were taking the antidepressant and if they had experienced any side effects.

Thirteen percent of consumers had no follow-up with their prescriber after receiving the antidepressant prescription. Another 17 percent of consumers had contact with the prescriber and rated communication styles low. Thus 30 percent of consumers had little or no follow-up with prescribers. These consumers did not express concerns to prescribers about the medication or depression. Consumer antidepressant use was not monitored for problems or positive effects by nearly one-third of prescribers.

Eight percent of consumers reported strong pharmacist follow-up communication style. These pharmacists used a participatory style in problem solving and monitored medication use. However pharmacists appear to do little when following up with consumers taking antidepressant medication. Few pharmacists monitored antidepressant medication use by asking how the antidepressant was working, how the consumer was taking the medication or if they had experienced any medication side effects.

It appears that pharmacists ask if consumers have questions while directly or indirectly communicating that a conversation is not necessary. Consumers report that pharmacists ask if there are concerns and ask if there are any problems. At the same time consumers report that pharmacists are not or are rarely listening to concerns. Pharmacists are not listening because consumers are not talking to them. Communication continues to be a problem for pharmacists. Many barriers to communication exist in the community pharmacy setting especially when medication for mental health is dispensed.

Eighty-seven percent of consumers reported feeling better some or a lot of the time since taking the antidepressant. Thirteen percent of consumers felt better rarely if ever when taking the antidepressant. Twenty-seven percent of consumers were bothered by the antidepressant and 25 percent were unsatisfied with the antidepressant treatment experience. Overall, the 2-month evaluation of antidepressant use resulted in reports of feeling better much more often than not.

Results from the hierarchical regression modeling show that the greatest predictor of a positive evaluation of antidepressant use is a positive anticipated value of

antidepressant treatment initially. The greatest predictor of a positive anticipated value of antidepressant use is Prescriber Initial Communication Style. Prescriber Initial Communication Style and Pharmacist Follow-up Communication Style contribute to the final regression model predicting a positive evaluation of antidepressant use.

Consumers' perceiving their prescribers as highly approachable and informative during the initial doctor-patient visit evaluate antidepressant use positively. Also, consumers taking antidepressants for the first time tend to evaluate antidepressant use more positively than consumers who have taken antidepressants previously. Pharmacist follow-up is positively correlated with consumer evaluation of antidepressant use.

These findings suggest that initial prescriber communication style influences initial consumer beliefs about their medication. Prescribers with an approachable and informative manner initially contribute to a consumer's positive anticipated value of antidepressant treatment initially. The data show that pharmacists with a participatory manner and monitoring behavior during follow-up contribute to a consumer's positive evaluation of antidepressant use. The

lack of variability in pharmacist follow-up, in addition, to low follow-up communication style scores reduce the likelihood that pharmacists are influencing consumer evaluation with antidepressant use. It is more likely that consumers evaluating their medication positively continue treatment and therefore refill their prescription and have a follow-up visit with their pharmacist. The next chapter further investigates the relationships between consumer beliefs and behaviors concerning antidepressant medication.

## CHAPTER SEVEN

CONSUMER BEHAVIOR IN TAKING ANTIDEPRESSANTS:  
MEDICATION OMISSIONS AND FACTORS THAT INFLUENCE

Data regarding consumer adherence with antidepressant medication are presented. Previous chapters focused on the relationship between providers' communication styles and consumer beliefs about antidepressant medication. This chapter focuses on consumer behavior in taking antidepressant medication. The entire research model is tested, encompassing provider communication styles, consumer beliefs about antidepressants and consumer behavior measured as medication omissions.

The chapter begins with descriptive statistics of consumer behavior related to medication use. Bivariate analysis, using Pearson correlation coefficients, examine relationships between background factors, treatment process variables and consumer behavior. Multivariate analysis with hierarchical regression determines the extent to which prescribers' communication styles, pharmacists' communication styles and consumer beliefs about antidepressant medication predict antidepressant medication use.

Data were obtained from telephone interviews conducted with 100 consumers at two points in time, at the beginning of antidepressant use and approximately two months later. Follow-up interviews occurred on average three months after the antidepressant start date. Medication use is measured by consumer self report. Study participants were asked several questions about medication use. Specific items focused on daily use over the last week. General items focused on medication use throughout the study period. Consumer report of medication use was used in creating the dependent variables.

#### A. DESCRIBING MEDICATION USE

##### A.1 Consumer Report of Treatment Continuation

The second interview began with the question, "are you currently taking (antidepressant)?" This statement opened the series of items concerning medication use so that treatment continuation and adherence could be determined. Obviously, participants replying "yes" were considered to have continued treatment. Participants replying that the prescription was switched to a different antidepressant were also considered to have continued treatment and questions were then asked about the most recent antidepressant prescribed. Consumers reporting

that they were no longer taking the antidepressant were then asked about the circumstances leading to discontinuation.

Some consumers were no longer taking the antidepressant but had taken it for the time prescribed. Consumers who took the prescription for the full time prescribed were considered to have completed treatment and were treatment continuers. Consumers who stopped the antidepressant before the prescription ended were considered to have discontinued treatment.

Seventy-six consumers continued antidepressant use during the study period. Of these 76 consumers, eight participants switched to a different antidepressant during their treatment and two participants switched antidepressants more than once. Three consumers reported completing the treatment plan. These consumers had taken the antidepressants prescribed for two to three months time.

Twenty-four consumers stopped taking the antidepressant before the prescription plan was completed. Individuals stopped taking their antidepressants at various times throughout the study period. Antidepressant prescriptions were taken from two to 100 days prior to discontinuing use. The average number of days from start to stop is 46. Twelve

participants stopped taking the antidepressant prescribed within 34 days of starting.

#### A.2 Consumer Report on Medication Use

In addition to measuring treatment continuation, the researcher attempted to learn the extent to which consumers increased and decreased doses during the treatment period. Medication use questions began with the following item, "how many days over the past week did you take (antidepressant)? Participants were asked about extra and omitted doses taken during the treatment period. Questions were asked about dose alterations made on purpose and in error, as in forgetting a dose. Questions focused on two time periods: 1) the past week and 2) since starting the antidepressant. The interview instruments are found in Appendix D.

Study participants reported doses omitted on purpose, doses forgotten and extra doses taken. Twenty-two consumers reported no omitted or extra doses from their start date to the second study interview date. Data on medication use behavior is presented in Table 18.

Overall, 66 percent of study participants reported forgetting one to 60 doses over the study period. Most

Table 18: Consumer self-report antidepressant use

# of doses	Continuers Percent (N=76)			Total Study Participants Percent (N=100)		
	In the past week:			Over the study period		
	Forgot	Omit on purpose	Extra	Forgot	Omit on purpose	Extra
0	73.7(56)	92.1(70)	96.1(73)	34.0(34)	76.0(76)	88.0(88)
1	18.4(14)	3.9 (3)	2.6 (2)	12.0(12)	5.0 (5)	1.0 (1)
2	7.9 (6)	1.3 (1)	0	10.0(18)	4.0 (4)	0
3	0	1.3 (1)	0	9.0 (9)	15.0(15)	4.0 (4)
4	0	1.3 (1)	0	8.0 (8)	0	1.0 (1)
5	0	0	0	6.0 (6)	0	1.0 (1)
6	0	0	0	4.0 (4)	0	1.0 (1)
7	0	0	0	1.0 (1)	0	2.0 (2)
8	0	0	0	1.0 (1)	0	0
9	0	0	0	1.0 (1)	0	0
10	0	0	1.3 (1)	2.0 (2)	0	0
12	0	0	0	3.0 (3)	0	1.0 (1)
60	0	0	0	1.0 (1)	0	0
80	0	0	0	0	0	1.0(1)

consumers reported forgetting one to four doses. Eight participants reported forgetting eight or more doses.

Twenty-four percent of consumers reported omitting doses purposely over the study period. Nine percent of consumers reported purposely omitting one or two doses. Fifteen percent of consumers reported omitting three doses over the study period.

Twelve percent of consumers reported taking extra doses over the study period. One to 80 extra doses were reported (consumer 10709 reported taking ten extra doses each week). The next highest number of extra doses reported was twelve. Generally, consumers reported taking one to seven extra doses over the study period.

The twenty-four consumers who had discontinued their antidepressant early did not report adherence items over the past week. However, items referring to the period of time they did take the antidepressant were reported. Eleven consumers who discontinued the antidepressant early reported forgetting one to eight doses over the time the medication was taken. Twelve reported omitting one to three doses on purpose over the same time period. Only two consumers reported taking extra

doses over the time the antidepressant was taken and one of them also reported omitted doses.

Seventy-six consumers who were continuing antidepressant prescriptions reported extra and omitted doses over the past week as well as over the study period. Twenty participants reported forgetting one to two doses in the week prior to the second interview. Fifty-five participants reported forgetting doses over the study period. Most medication continuers reported forgetting one to six doses. However, eight consumers forgot more than seven doses over the study period (consumer #20105 reported missing 60 doses over the study period). Six consumers reported purposely omitting one to four doses in the week prior to the second interview. Twelve participants reported omitting three doses over the study period. Participants continuing treatment also increased their doses over the study period. Ten consumers reported taking one to 80 extra doses over the study period (consumer #10709 reported taking ten extra doses each week). Three consumers reported taking three extra doses, this was the mode.

The variable medication omissions was created using the consumer self-report of medication use. Treatment omissions were coded as low, medium, or high. Low medication omissions

were coded for participants who reported no forgotten or purposely omitted doses during the treatment period. Medium medication omissions were coded when consumers reported some forgotten or purposely omitted doses during the treatment period. High medication omissions were coded for individuals discontinuing antidepressant medication completely. Twenty-four consumers discontinuing the medication completely were coded as high. Eighteen consumers reported missing no doses and were coded as low in medication omissions. Fifty-eight consumers reported missing some doses and were coded as medium in medication omissions.

#### B. BIVARIATE ANALYSIS

Relationships between two variables are evaluated with Pearson correlation coefficients. Table 19 presents the correlation coefficients for consumer background factors, treatment process variables and the dependent variable, medication omissions.

With the exception of age, background factors are not related to treatment omissions. Age is positively correlated with medication omissions ( $r=.20$ ,  $p<.05$ ), suggesting that younger consumers are more likely to continue taking their

Table 19: Correlation coefficients for consumer background factors and treatment process variables and medication omissions

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	-													
2. Gender (Male=1)	.07	-												
3. College Education (Yes=1)	-.13	-.01	-											
4. Household Income	.19	-.13	.13	-										
5. Depression Symptoms Initial	-.45 ***	-.16	-.01	-.05	-									
6. Previously Taken Antidepressants (Yes=1)	-.02	.01	-.02	-.21 *	.09	-								
7. SSRI Type Antidepressant (Yes=1)	.11	-.03	.08	.26 **	-.15	-.12	-							
8. Prescriber Initial Communication Style	-.19	-.00	.06	.12	.21*	.05	-.05	-						
9. Pharmacist Initial Communication Style	-.05	-.07	-.01	-.18	-.02	-.11	-.08	-.01	-					
10. Knowledge Index	-.24 *	-.00	.33 ***	.08	.12	-.16	.09	.24*	-.10	-				
11. Anticipated Value	-.08	-.04	-.10	.08	.17	.13	.11	.31 ***	-.01	-.01	-			
12. Prescriber Follow-up	-.07	.03	.00	-.00	.20*	-.01	-.13	.43 ***	.06	.19*	.23*	-		
13. Pharmacist Follow-up	-.13	-.12	-.02	-.15	.12	-.09	-.11	.22*	.16	.19*	.07	.37 ***	-	
14. Evaluation of Antidepressant Use	-.10	-.03	-.12	.06	.20*	-.15	.05	.32 ***	-.03	.17*	.55 ***	.26 **	.25 **	-
15. Medication Omissions (l/m/h)	.20*	.06	-.01	-.14	-.12	.11	.09	-.33 ***	.05	-.16	-.33 ***	-.28 **	-.27 **	-.46 ***

\*P<.05 \*\*P<.01 \*\*\*P<.001

antidepressant medication and report fewer omissions in medication than older consumers.

According to compliance research, age alone does not explain treatment adherence. It is generally understood that compliance with medication prescriptions is more difficult when the individual has multiple prescriptions and multiple health conditions being treated. Multiple prescriptions are more common among older individuals. In any case, explanations for the positive correlation between age medication omissions need to be considered.

Alternative explanations could be explained by characteristics related to age. For example, study findings indicate younger participants' report worse depression than older participants. Perhaps consumer belief concerning the seriousness of their condition has influenced their antidepressant adherence. Similarly, younger individuals in this sample are more knowledgeable about the medication and its use. The relationship could be explained as adherence increases with more information concerning medication use.

However, neither depression symptoms nor knowledge is correlated with medication omissions. Thus, the explanation for the correlation between age and treatment omissions is not

related to knowledge or initial symptoms. Perhaps, older consumers are more willing to report the full extent of missed doses. If that were the situation, then treatment omissions would be greater with consumer age.

Initial treatment process variables are reviewed for correlations with medication omissions. Prescriber Initial Communication Style is strongly correlated with medication omissions ( $r = -.33$ ,  $p < .001$ ). The coefficient suggests that consumers who initially perceive their prescriber as approachable and informative are less likely to omit medication doses. Prescribers with strong initial communication style may influence consumers to take medications as prescribed.

Pharmacist Initial Communication Style and Knowledge Index are not related to medication omissions. In this study, approachable and informative pharmacists do not influence consumer behavior toward taking medication as prescribed. Increased knowledge about the antidepressant does not relate to consumer medication use. Previous research has suggested that consumers receiving more information about their medication will be more adherent to the prescription. The data suggest that consumer information is not related to medication use. The finding is expected based on the research model, a consumer

may know the antidepressant is to be taken every day, but if the consumer does not like the way the medication affects her, she will not take it as prescribed. Anticipated Value of the antidepressant is related to medication omissions. Participants initially anticipating antidepressants to be useful in treating depression tend to adhere to the treatment regimen ( $r = -.33$ ,  $p < .001$ ).

Follow-up treatment process variables are strongly correlated with medication omissions. Prescriber Follow-up is related to medication omissions ( $r = -.28$ ,  $p < .01$ ). Prescribers using a participatory manner in problem solving and monitoring medication use tend to have patients who are less likely to omit medication doses. Similarly, Pharmacist Follow-up is related to medication omissions ( $r = -.27$ ,  $p < .01$ ). Pharmacists high in follow-up style dispense prescription refills to consumers who are less likely to omit medication doses.

The strongest correlation exists between consumer evaluation of medication use and medication omissions ( $r = -.46$ ,  $p < .001$ ). Consumers evaluating antidepressant medication positively are less likely to omit medication doses and more likely to continue antidepressant medication use. Nearly 25 percent of medication omissions are associated with consumer

evaluation of antidepressant use. Correlation data does not allow for causal inference. Therefore, this finding could be interpreted as rarely omitting antidepressant doses results in a more positive evaluation of the antidepressant treatment.

Findings of the bivariate analysis indicate that treatment omissions are related most strongly to treatment process variables. Prescriber communication style, pharmacist follow-up communication style, and consumer beliefs about the antidepressant influence medication use. Consumers with positive beliefs about their medication report fewer treatment omissions. Providers with strong communication styles have more adherent consumers.

### C. MULTIVARIATE ANALYSIS

This section presents results of the multivariate analysis predicting antidepressant medication omissions. The purpose of this analysis is to test how strongly background factors and treatment process variables are related to consumer omissions of prescribed doses. The multivariate analyses were conducted using hierarchical regression procedures. The hierarchical approach to the regression analysis used in previous chapters is followed. Independent variables were entered in the sequence considered to be actual order of events. This

sequencing increases our understanding of the contribution each set of variables makes to the model. Results of the first regression analysis are presented in Table 20.

In step one of the analyses, the seven background factors: 1) age; 2) gender; 3) college education; 4) household income; 5) initial depression symptoms; 6) previous antidepressant use and 7) type of antidepressant prescribed were tested in the regression equation. No background factors were significant in predicting medication omissions. The equation explains 2 percent of the variation in medication omissions and is not statistically significant.

The second step involves the regression of consumer background factors and the initial treatment process variables onto the dependent variable. The initial treatment process variables are: 1) Prescriber Initial Communication Style; 2) Pharmacist Initial Communication Style; 3) Knowledge Index; and 4) Anticipated Value of antidepressant treatment. The eleven variable equation is significant with a probability of occurring at the .05 level. The equation explains fourteen percent of the variation in medication omissions. Prescriber Initial Communication Style ( $\beta = -.21$ ,  $p < .05$ ) and Anticipated Value ( $\beta = -.30$ ,  $p < .01$ ) contribute most to the equation.

Table 20: Multiple Regression equations of background factors and treatment process variables predicting medication omissions

Variable	b	SE	beta	t	b	SE	beta	t	b	SE	beta	t
intercept	.68	.53	.00	1.3	2.2	.70	.00	3.2***	2.7	.32	.00	8.4***
age	.01	.01	.22	1.9	.01	.01	.11	.98				
gender	.04	.16	.03	.28	.06	.15	.04	.41				
college education	.06	.15	.04	.44	.08	.15	.06	.57				
household income	-.00	.00	-.18	-1.7	-.00	.00	-.07	-.70				
initial depression symptoms	-.00	.01	-.03	-.24	.01	.01	.08	.71				
previously taken antidepressant	.13	.14	.10	.97	.22	.14	.17	1.6				
SSRI type antidepressant	.16	.16	.10	1.0	.23	.15	.15	1.5				
prescriber initial communication style					-.04	.02	-.21	-2.0*	-.04	.02	-.19	-2.0*
pharmacist initial communication style					.01	.02	.06	.56				
knowledge index					-.01	.02	-.05	-.46				
anticipated value					-.06	.02	-.30	-2.9**				
prescriber follow-up												
pharmacist follow-up												
evaluation of antidepressant use									-.10	.02	-.42	-4.5***
F-ratio	1.3				2.4*				16.5***			
R-Square	.09				.24				.26			
R-square (adj)	.02				.14				.24			

\*P<.05 \*\*P<.01 \*\*\*P<.001

Consumers who initially find their prescribers to be approachable and informative and who initially anticipate positive results with antidepressant treatment are less likely to omit medication doses.

The third step in the regression analysis added the follow-up treatment process variables to the equation. The fourteen variables were regressed onto medication omission using a backward elimination process. Results of the regression are presented in the third columns of Table 20. Prescriber Initial Communication Style ( $\beta = -.19$ ,  $p < .05$ ) and Evaluation of Antidepressant Use ( $\beta = -.42$ ,  $p < .001$ ) are significant predictors of medication omissions. Consumers who initially consider their prescribers to be approachable and informative and who later evaluate antidepressant use positively are less likely to omit antidepressant doses. The regression equation explains 24 percent of the variation in medication omissions ( $p < .001$ ).

In order to examine the quality of the findings additional regressions were examined. The total number of variables in the model were reduced so that a full regression could be completed. Treatment process variables measured initially and in follow-up on a specific provider were combined. Consumer

beliefs initially and after use concerning antidepressant medication were also combined. Prescriber Initial Communication Style and Prescriber Follow-up were combined to create Prescriber Style Total. Similarly, Pharmacist Initial Communication Style and Pharmacist Follow-up were combined to create Pharmacist Style Total. Anticipated Value of antidepressant use and Evaluation of antidepressant use were combined to create Medication Beliefs Total.

The frequencies of the combined variables are presented in Appendix G. Prescriber Style Total ranges from three to 22 with an average of 18.2. Pharmacist Style Total ranges from three to 21 with an average score of 14.8. The Medication Belief Total score ranged from 17 to 42 with an average score of 32.2.

Combining the process variables reduced the total number of study variables to eleven. The goal is to run a regression of the full model onto medication omissions in order to clarify the influence of all the variables on consumer behavior measured as medication omissions. Regression results are presented in Table 21.

Variables were placed into the regression equation in steps so that contributions could be analyzed more carefully.

Table 21: Multiple Regression equations of background factors and combined treatment process variables predicting medication omissions

Variable	b	SE	beta	t	b	SE	beta	t	b	SE	beta	t
intercept	.68	.53	.00	1.3	1.4	.64	.00	2.2*	2.4	.65	.00	3.7*
age	.01	.01	.22	1.9	.01	.01	.14	1.3	.01	.01	.12	1.1
gender	.04	.16	.03	.28	.08	.15	.05	.51	.06	.14	.04	.39
college education	.06	.15	.05	.44	.14	.15	.09	.91	.05	.14	.03	.32
household income	-.00	.00	-.18	-1.7	-.00	.00	-.13	-1.2	-.00	.00	-.08	-.83
initial depression symptoms	-.00	-.01	-.03	-.24	.01	.01	.07	.59	.01	.01	.11	1.1
previously taken antidepressant	.13	.14	.10	.97	.13	.14	.10	.98	.17	.13	.13	1.3
SSRI type antidepressant	.16	.16	.10	1.0	.14	.15	.09	.92	.22	.14	.14	1.5
prescriber style total					-.06	.02	-.33	-3.1*	-.03	.02	-.20	-1.9*
pharmacist style total					.00	.02	.02	.21	.00	.02	.03	.31
knowledge index					-.01	.03	-.04	-.40	-.00	.02	-.02	-.18
medication belief total									-.05	.01	-.39	-3.8***
F-ratio	1.3				1.9*				3.3***			
R-Square	.09				.18				.30			
R-square (adj)	.02				.09				.21			

\*P<.05 \*\*P<.01 \*\*\*P<.001

The first set of variables consisted of the seven background factors. As found previously no background factors were significant in predicting medication omissions with antidepressant medication. The addition of Prescriber Style Total and Pharmacist Style Total improved the model fit. Nine percent of the variation in medication omissions is explained with provider styles added ( $p < .05$ ). Prescriber Style contributed most to the model ( $\beta = -.34$ ,  $p < .001$ ). Prescribers with strong communication styles are less likely to have patients who omit medication doses. Adding Knowledge Index and Total Medication Beliefs improved the model fit again. The full regression equation explains 21 percent of the variation in medication omissions ( $p < .001$ ). Prescriber Style Total ( $\beta = -.20$ ,  $p < .05$ ) and Medication Belief Total ( $\beta = -.39$ ,  $p < .001$ ) contributed most to the equation. This finding is similar to the first regression analysis that is Consumers who have a prescriber with a strong communication style and who have positive beliefs about the antidepressant are more likely to take the antidepressant as prescribed.

Another method for assessing variable contribution to predicting medication omissions is to regress only the treatment process variables onto the dependent variable. This

is reasonable considering background factors were not included in the research model nor have they contributed to predicting consumer behavior to this point in the analysis.

Regressing Prescriber Initial Communication Style and Pharmacist Initial Communication Style onto medication omissions results in a statistically significant equation ( $p < .01$ ). Nine percent of the variance in medication omissions is explained. Prescriber Initial Communication Style contributes significantly to the model ( $\beta = -.32$ ,  $p < .01$ ). Consumers with approachable and informative prescribers are less likely to omit medication doses.

Adding Knowledge Index and Anticipated Value to the equation also improved the model fit. The four variable model equation explains 14 percent of variance in medication omissions ( $p < .01$ ). Prescriber Initial Communication style ( $\beta = -.22$ ,  $p < .05$ ) and Anticipated Value ( $\beta = -.27$ ,  $p < .01$ ) contributed significantly to the model. Consumers with approachable and informative prescribers and who initially anticipate positive results from the medication are less likely to omit medication doses.

Adding Prescriber Follow-up and Pharmacist Follow-up improved the adjusted R-square to 16 percent ( $p < .01$ ). The

contribution by Prescriber Initial Communication Style was reduced by the addition. However, the contribution of Anticipated Value increased ( $\beta = -.26, p < .01$ ). This result is expected because Prescriber Initial Communication Style and Prescriber Follow-up are highly correlated.

The addition of Evaluation of Antidepressant Use increased the adjusted R-square to 23 percent ( $p < .001$ ). The only statistically significant contribution to the seven variable model equation is made by Evaluation of Antidepressant Use ( $\beta = -.34, p < .01$ ). Consumers who evaluate antidepressant use positively are less likely to omit medication doses.

Alternatively, the regression method could include consumer background factors specific to antidepressant treatment in addition to the process variables. These regressions would then include Initial Depression Symptoms, Previous Antidepressant Use, Type of Antidepressant Prescribed, Prescriber Initial Communication Style, Pharmacist Initial Communication Style, Knowledge Index, Anticipated Value, Prescriber Follow-up, Pharmacist Follow-up and Evaluation of Antidepressant Use. The ten variables were regressed onto medication omissions. The results are presented in Table 22.

Table 22: Multiple Regression equations of clinical background factors and treatment process variables predicting medication omissions

Variable	b	SE	beta	t	b	SE	beta	t	b	SE	beta	t
intercept	1.8	.49	.00	3.6 ***	2.7	.55	.00	4.8 ***	2.5	.53	.00	4.8 ***
initial depression symptoms	-.00	.01	-.01	-.13	.00	.01	.03	.33	.01	.01	.07	.79
previously taken antidepressant	.20	.13	.15	1.5	.25	.13	.19	1.9	.14	.13	.11	1.1
SSRI type antidepressant	.15	.15	.10	.99	.22	.15	.15	1.5	.18	.14	.12	1.2
prescriber initial communication style	-.07	.02	-.33	-3.3 ***	-.05	.02	-.22	-2.2 *	-.03	.02	-.15	-1.4
pharmacist initial communication style	.01	.02	.06	.65	.01	.02	.06	.66	.01	.02	.07	.79
knowledge index					-.01	.02	-.04	-.42	.00	.02	.01	.10
anticipated value					-.06	.02	-.32	-3.2 ***	-.03	.02	-.15	-1.3
prescriber follow-up									-.03	.06	-.06	-.51
pharmacist follow-up									-.08	.08	-.10	-.98
evaluation of antidepressant use									-.08	.03	-.32	-2.7 **
F-ratio	2.8 *				3.6 **				3.8 ***			
R-Square	.13				.22				.31			
R-square (adj)	.09				.16				.23			

\*P<.05 \*\*P<.01 \*\*\*P<.001

The three clinical background factors and provider initial communication styles resulted in a significant regression equation ( $p < .05$ ). Prescriber Initial Communication Style contributed most to the model ( $\beta = -.33$ ,  $p < .01$ ). Nine percent of the variation in medication omissions is explained by the five variable model.

Adding Knowledge Index and Anticipated Value to the equation improved the model fit (adjusted R-square = .16,  $p < .01$ ). The contribution by Prescriber Initial Communication Style was reduced but remained significant ( $\beta = -.22$ ,  $p < .05$ ). Anticipated Value contributed most the equation ( $\beta = -.33$ ,  $p < .001$ ).

The addition of Prescriber Follow-up and Pharmacist Follow-up did not improve the model fit. The addition of Pharmacist Follow-up significantly reduced the contribution by Prescriber Initial Communication Style. Finally, the addition of Evaluation of Antidepressant Use increased the adjusted R-square to 23 percent ( $F = 3.8$ ,  $p < .001$ ). The only significant contribution is made by Evaluation of Antidepressant Use ( $\beta = -.32$ ,  $p < .01$ ). Consumer evaluation of antidepressant use explains 23 percent of the variation in medication omissions.

Regression analyses were conducted using a binary dependent variable and logistic regression. Consumers were coded as continuing or discontinuing antidepressant treatment. The logistic regression was run using hierarchical procedures.

The original findings are supported with the logistic regression. No background factors predict treatment continuation. Prescriber Initial Communication Style and Anticipated Value of Antidepressants predict treatment continuation until follow-up variables are placed in the equation. When all independent variables are regressed onto treatment continuation in a backward elimination procedure, Prescriber Initial Communication Style and Evaluation of Medication Use remain in the model. Results of logistic regressions are presented in Table 23.

The final regression completed was a full model equation regressed onto the dependent variable, treatment continuation. Results of the full regression show once again that a positive Evaluation of Medication Use predicts treatment continuation with antidepressant medication. In addition, consumers report fewer omissions of medication when they are taking SSRI antidepressants.

Table 23: Logistic regression results for predicting medication omissions of antidepressants (N=97)<sup>1</sup>

Variable	b	SE	odds ratio	95% CI	b	SE	odds ratio	95% CI	b	SE	odds ratio	95% CI
age	.04	.02	1.0	.99,1.1	.02	.03	1.0	.97,1.1				
gender	.21	.57	1.2	.40,3.7	.39	.68	1.5	.39,5.6				
college education	-.08	.55	0.9	.31,2.7	.16	.71	1.2	.29,4.7				
household income	.00	.00	1.0	1.0,1.0	.00	.00	1.0	1.0,1.0				
initial depression symptoms	-.02	.04	1.0	.91,1.1	.04	.05	1.0	.95,1.1				
previously taken antidepressant	.47	.65	1.6	.44,5.7	.89	.79	2.4	.52,11				
SSRI type antidepressant					-.23	.10	.79***	.66,.96	-.21	.09	.81*	.67,.99
prescriber initial communication style					.06	.09	1.1	.88,1.3				
pharmacist initial communication style					-.08	.12	.93	.73,1.2				
knowledge index					-.29	.10	.75**	.61,.91				
anticipated value												
prescriber follow-up												
pharmacist follow-up												
evaluation of antidepressant use									-.56	.14	.57***	.44,.75
Constant	-2.0				5.0**				7.4***			
-2LogLikelihood	102.4				76.7				65.3			
DF	92				85				83			
Improvement of Fit	7.7/7				27.2/1				38.5/2			

\*P&lt;.05 \*\*P&lt;.01 \*\*\*P&lt;.001

<sup>1</sup> N=100 in first regression, thereafter N=97 because 3 consumers did not rate pharmacist initial communication style.

#### D. SUMMARY

Consumer evaluation of antidepressant use is a good predictor of consumer behavior with antidepressant medication use. Consumers' evaluating antidepressant use positively are less likely to omit doses or discontinue antidepressant use as shown by the regression analyses.

Consumers do increase and omit doses of antidepressants as reported in this 2-month evaluation of antidepressant medication use. Antidepressant medication use is predictable by asking consumers how much the medication made them feel worse and made them feel better. Asking consumers about positive and negative medication effects is important when evaluating medication use because consumers may experience both positive and negative effects from medication. Consumers may experience negative effects without positive effects, or preferably positive effects without negative effects. Positive and negative effects need to be evaluated when trying to predict medication use behavior.

The dependent variables, medication omissions and treatment continuation, are determined only by consumer report in this analysis. It is very likely that alterations in doses are underreported by consumers. This can be the case because

people forget doses and do not realize it. In addition, admitting noncompliance with prescription medication is not the norm, especially to health care providers and perhaps researchers in the School of Pharmacy. However, consumers did reveal at least some of their known nonadherence with their antidepressant prescription.

In addition, the dependent variables are defined in a very general manner. Treatment continuation is defined as yes or no. Medication omissions are categorized as low, medium or high. Study conclusions will be more robust in nature when the analysis is completed using additional pharmacy record data as a measure of treatment continuation and adherence.

Despite study limitations of self-reported nonadherence. The study results are interesting and support the predicted model. The data presented in Chapter 5 suggest that a highly approachable and informative prescriber is predictive of a consumer with a positive anticipated value of antidepressant medication. The data presented in chapter 6 suggests that a positive anticipated value of antidepressant medication is predictive of a positive evaluation of antidepressant use. Findings in this chapter indicate that evaluating antidepressant use positively predicts treatment continuation.

Positive evaluations predict fewer medication omissions. Prescriber communication style influences consumer beliefs and behavior toward their prescribed medication. The next chapter describes consumer clinical outcomes and examines the extent to which providers influence them.

## CHAPTER EIGHT

## HEALTH RELATED OUTCOMES OF ANTIDEPRESSANT TREATMENT

The chapter begins with a description of study participants' health related outcomes measured during the second telephone interview. The health related measures include clinical outcomes and treatment goal outcomes. The clinical outcomes were assessed with a twelve-item depression scale. Consumers reported extent of depressive symptoms initially and at follow-up. Treatment goals were identified by consumers during the initial interview and status of goals determined during the follow-up interview.

The data are analyzed for predictors of health related outcomes among the study sample. Depression symptoms at follow-up, change in depression and treatment goal status are analyzed using bivariate and multivariate analysis. Pearson correlation coefficients examine relationships between background factors, treatment process variables, medication omissions and health related outcomes. Hierarchical regression predicts fewer depression symptoms at follow-up, greater change in depression symptoms, and improvement in goal status. Factors predicting better clinical outcomes are discussed.

## A. HEALTH RELATED OUTCOMES

### A.1 Follow-up Depression Symptoms

In general, depression symptoms were lower at the time of the follow-up interview. More than 50 percent of the consumers reported feeling the following seven symptoms *none or a little of the time*: 1) lack of interest in things I used to do; 2) lack of pleasure in being with friends or family; 3) appetite problems; 4) thoughts of death or suicide; 5) feeling hopeless; 6) feeling anxious and 7) lack of interest in sexual activity. The two symptoms experienced most by the largest percent of consumers were trouble sleeping or sleeping all of the time and lack of energy or feeling tired all of the time. About one-third of the consumers experienced these symptoms a *good part of the time to most or all of the time*. Frequency distributions appear in Appendix G. Consumer experience of depression symptoms prior to antidepressant treatment and at the time of the second interview are presented in Table 24. Comparisons of the initial and follow-up depression symptom scores illustrate clinical improvement consumers experienced.

The total follow-up depression scores were subtracted from the total initial depression scores to determine change in depression symptoms. Change in depression scores could range

Table 24. Consumer depression symptoms initial and follow-up (N=100)

Symptom	Initial	Follow-up
Lack of interest in things used to do		
None or little of the time = 1	11	58
Some of the time = 2	18	23
Good part of the time = 3	21	10
Most or all of the time = 4	50	9
Mean (SD)	3.1 (1.1)	1.7 (.98)
Lack pleasure in being with friends/family		
None or little of the time = 1	13	57
Some of the time = 2	23	28
Good part of the time = 3	33	8
Most or all of the time = 4	31	7
Mean (SD)	2.8 (1.0)	1.7 (.90)
Feeling sad, blue or down in the dumps		
None or little of the time = 1	6	37
Some of the time = 2	14	41
Good part of the time = 3	24	13
Most or all of the time = 4	56	7
Mean (SD)	3.3 (.93)	1.9 (.93)
Feeling slowed down or restless		
None or little of the time = 1	3	34
Some of the time = 2	17	38
Good part of the time = 3	24	17
Most or all of the time = 4	56	11
Mean (SD)	3.3 (.87)	2.1 (.98)
Appetite problems		
None or little of the time = 1	24	58
Some of the time = 2	24	23
Good part of the time = 3	19	8
Most or all of the time = 4	33	11
Mean (SD)	2.6 (1.2)	1.7 (1.0)
Thoughts of death or suicide		
None or little of the time = 1	61	86
Some of the time = 2	20	8
Good part of the time = 3	10	5
Most or all of the time = 4	9	1
Mean (SD)	1.7 (.99)	1.2 (.57)

(continued)

Table 24: continued

Symptom	Initial	Follow-up
<b>Problems concentrating, making decisions</b>		
None or little of the time = 1	8	47
Some of the time = 2	25	34
Good part of the time = 3	19	10
Most or all of the time = 4	48	9
Mean (SD)	3.1 (1.0)	1.8 (.95)
<b>Trouble sleeping or sleeping too much</b>		
None or little of the time = 1	7	38
Some of the time = 2	20	29
Good part of the time = 3	16	16
Most or all of the time = 4	57	17
Mean (SD)	3.2 (1.0)	2.1 (1.1)
<b>Lack of energy or feeling tired all the time</b>		
None or little of the time = 1	3	38
Some of the time = 2	18	32
Good part of the time = 3	25	13
Most or all of the time = 4	54	17
Mean (SD)	3.3 (.87)	2.1 (1.1)
<b>Feeling hopeless</b>		
None or little of the time = 1	15	64
Some of the time = 2	21	22
Good part of the time = 3	27	10
Most or all of the time = 4	37	4
Mean (SD)	2.9 (1.1)	1.5 (.83)
<b>Feeling anxious</b>		
None or little of the time = 1	18	51
Some of the time = 2	25	36
Good part of the time = 3	21	11
Most or all of the time = 4	36	2
Mean (SD)	2.8 (1.1)	1.6 (.76)
<b>Lack of interest in sex</b>		
None or little of the time = 1	16	55
Some of the time = 2	32	24
Good part of the time = 3	18	7
Most or all of the time = 4	34	14
Mean (SD)	2.7 (1.1)	1.8 (1.1)
<b>Total Depression Score</b>		
Range	17 - 48	12 - 43
Mean (SD)	34.7(7.4)	21.3 (7.9)
Cronbach alpha	.85	.90

from -36 to +36. The study sample range is -19 to 34 with an average score of 13.5. Overall, consumers improved during the study period. Ninety-one consumers had positive scores in depression change. Six consumers had negative scores and three consumers had no change in depression symptoms. Results are presented in Table 25.

Analysis is conducted using follow-up depression scores and depression change scores as measures of clinical outcome. Change in depression controls for initial depression symptoms while providing a measure of the difference individuals experience in their daily lives. For example, a change from experiencing fatigue most of the time to some of the time is very different in daily terms to an individual but is still a considerable amount of fatigue at face value. Multivariate analysis will focus on factors influencing greater or lesser change in daily experience of depression symptoms.

Follow-up depression score is a reliable, valid and comparable factor for analysis. Depression at follow-up was measured on the date of the follow-up interview for all study participants. Participants reported how they felt at the moment and so responses are not biased with problems in recall. Participants evaluated themselves using a common depression

Table 25: Change in depression symptoms (N=100)

Change in symptoms	Frequency	Percent	Cumulative Percent
-19	1	1.0	1.0
-16	1	1.0	2.0
- 3	1	1.0	3.0
- 1	3	3.0	6.0
0	3	3.0	9.0
1	4	4.0	13.0
2	2	2.0	15.0
3	2	2.0	17.0
4	4	4.0	21.0
5	2	2.0	23.0
6	2	2.0	25.0
7	3	3.0	28.0
8	1	1.0	29.0
9	4	4.0	33.0
10	2	2.0	35.0
11	3	3.0	38.0
12	9	9.0	47.0
13	2	2.0	49.0
14	3	3.0	52.0
15	4	4.0	56.0
16	1	1.0	57.0
17	2	2.0	59.0
18	5	5.0	64.0
19	5	5.0	69.0
20	4	4.0	73.0
21	5	5.0	78.0
22	4	4.0	82.0
23	5	5.0	87.0
24	4	4.0	91.0
26	2	2.0	93.0
27	1	1.0	94.0
29	2	2.0	96.0
30	1	1.0	97.0
31	2	2.0	99.0
34	1	1.0	100.0

scale making the depression score a useful measure for comparison.

#### A.2 Consumer Treatment Goals

Antidepressant treatment outcomes should be determined by the consumer. Study participants' personal treatment goals were reported. Treatment goals were obtained by asking consumers the following open-ended question during the initial telephone interview: "people have different goals from medication, in what three areas would you most like improvement from the antidepressant?".

All study participants named at least one treatment goal. Many consumers reported three treatment goals for which they desired change from the antidepressant medication. Some consumers could only name one or two goals. This discussion focuses on the first treatment goal reported by each study participant.

Treatment goals varied. For example, "get over depression" was mentioned as a treatment goal. Other goals mentioned include: "be able to sleep" and "feel less angry." Treatment goals were general in nature and reflected depression scale items.

More than half of the consumers mentioned one of the following five treatment goals as their primary area of concern. A desire to stabilize mood, feel less angry or irritable or sad about things was mentioned by the largest number of participants. A desire for increased energy was mentioned very often as a treatment goal. Consumers wanted to make decisions and increase mental concentration as often as they mentioned a desire to feel hopeful about life again. Finally, motivation was mentioned by many consumers as an initial treatment goal.

Twenty consumers mentioned a desire for improved sleep, decreased anxiety, and feeling better about themselves. Additional treatment goals include: feeling interested in anything, feeling pleasure, to stop thinking about suicide, be able to function, have less pain, have a normal appetite, gain weight and fewer side effects from the antidepressant.

Consumers assessed the status of the treatment goal during the second interview. Goals either improved, worsened or remained unchanged. Eighty-two consumers reported improvement of the primary treatment goal. Twelve consumers reported no change in their first treatment goal. Six consumers reported a worsening of the treatment goal.

No change was reported for consumers wanting better sleep, more energy, more motivation, better concentration, feel pleasure, feel interested in something, fewer appetite problems, more relaxed, and less pain. Symptoms that worsened over time included: more energy, more motivation, feel in control of emotions and get my life back by either reduced pain or gaining some weight. A consumer reported that her suicidal thoughts were worsening. She believed the medication was working but her poor health was hard to overcome. She and her family doctor were working together and she planned to contact a psychiatrist. The researcher restated treatment goals during the follow-up interview so that consumers could evaluate the current status. Treatment goals were more likely to receive an "improvement" rating by consumers when the goal was focused. Goals that covered broad areas were less likely to improve. For example, the treatment goal "get my life back" was worse when evaluated at follow-up. Considering telephone interviews were separated by approximately two months, this goal would be difficult to attain. In this case, the goal involved reduced body pain, reduced headaches, return to work, return to previous earnings, and renewal of friendships and old

pastimes. The goal was unlikely to improve during the study period.

Another consumer desired weight gain from the antidepressant treatment. She stopped taking the medication within a few weeks of starting because she did not think it was working. Weight gain would require more than a few days or weeks to assess effectively. Unfortunately some consumers had treatment goals that were almost certain to fail in the short-term.

Consumers knew what changes they were looking for when asked the question and were at times candidly excited about responding to the question. In fact, some participants commented that they liked the idea of thinking about what they wanted from the medication treatment. Some participants said they really had not thought about it exactly, they just wanted to feel better. The placement of the treatment goal item is potentially a problem. The question was asked after the depression symptoms were assessed in the first interview. This arrangement may have influenced the type of responses received.

This area of treatment, consumer treatment goals, offers an opportunity for providers to work together with patients. Consumers who understand how medication is expected to help,

can more effectively give helpful feedback to providers. Health care providers could help consumers by discussing treatment goals prior to initiating treatment. Smaller initial treatment goals could be suggested as a starting point so that progress is noticed and better able to be assessed. Determination of appropriate therapy would be the result of contributions by consumer and provider. Rodin and Janis (1982) have suggested that greater participation of the consumer as well as effective responses by providers increases consumers' feelings of involvement and self-efficacy. Consumer's increased perceptions of control then result in greater adherence to treatment recommendations and improved health status.

The research model does not address this issue sufficiently to understand how consumers decided their treatment goals. The data suggests that consumers have treatment goals that are difficult to achieve in a short period of time. Previous research suggests providers could influence health outcomes with more communication about treatment goals.

Pharmacists in particular have an opportunity to help consumers feel better and be more satisfied with care and adhere to treatment recommendations. The data suggests that

pharmacists have difficulty in communicating with consumers especially during follow-up visits. The discussion of treatment goals offers pharmacists an area to add to consumers' treatment process and outcome.

## B. BIVARIATE ANALYSIS

### B.1 Follow-up Depression Scores

Relationships between two variables are evaluated with Pearson correlation coefficients. Tables 26 and 27 present the correlation coefficients for consumer background factors, treatment process variables and the dependent variables, follow-up depression score, depression change and treatment goal status.

Two statistically significant correlations exist between follow-up depression score and background factors. Fewer depression symptoms at follow-up are correlated with higher household income ( $r = -.22$ ,  $p < .05$ ) and having a SSRI antidepressant prescribed ( $r = -.22$ ,  $p < .05$ ). The correlations suggest that consumers have fewer depression symptoms when they are prescribed an SSRI antidepressant and have higher household incomes. In earlier chapters correlations were presented between higher household incomes, having a SSRI prescribed and first time antidepressant use. It is likely that consumers

Table 26: Correlation coefficients for consumer background factors and depression symptoms follow-up, depression change and treatment goal status

Variable	1	2	3	4	5	6	7	8	9
1. Age (18-84)	-								
2. Gender (Male=1)	.07	-							
3. College Education (Yes=1)	-.13	-.01	-						
4. Household Income (6500-150000)	.19	-.13	.13	-					
5. Depression Symptoms Initial (17-48)	-.45 ***	-.16	-.01	-.05	-				
6. Previously Taken Antidepressants (Yes=1)	-.02	.01	-.02	-.21 *	.09	-			
7. SSRI Type Antidepressant (Yes=1)	.10	-.14	-.02	.11	-.12	-.17	-		
8. Depression Symptoms Follow-up (12-43)	-.06	-.06	-.06	-.22 *	.17	.11	-.22*	-	
9. Depression Change (-19-34)	-.29**	-.07	.04	.14	.62***	-.02	.09	-.67 ***	-
10. Treatment Goal (high=improved)	-.09	-.05	-.07	.07	.10	-.12	.11	-.49 ***	.47 ***

\*P<.05 \*\*P<.01 \*\*\*P<.001

Table 27: Correlation coefficients for treatment process variables and depression symptoms follow-up, depression change and treatment goal status

Variable	1	2	3	4	5	6	7	8	9	10
1. Prescriber Initial Communication Style (3-18)	-									
2. Pharmacist Initial Communication Style (2-18)	-.01	-								
3. Knowledge Index (0-12)	.24**	-.10	-							
4. Anticipated Value Antidepressants (13-29)	.31***	-.01	-.01	-						
5. Prescriber Follow-up (0-4)	.43***	.06	.19*	.23*	-					
6. Pharmacist Follow-up (0-3)	.22*	.16	.19*	.07	.37***	-				
7. Evaluation of Antidepressant Use (3-13)	.32***	-.03	.17	.55***	.26**	.25**	-			
8. Medication Omissions (1/m/h)	-.33***	.05	-.16	-.33***	-.28**	-.27**	-.46***	-		
9. Depression Symptoms Follow-up (12-43)	-.35***	.09	-.16	-.21*	-.23**	-.00	-.45***	.22*	-	
10. Depression Change	.44***	-.08	.22*	.30**	.34***	.09	.51***	-.27**	-.67***	-
11. Treatment Goal (high=improved)	.26**	.20*	.03	.19*	.06	-.04	.41***	-.18*	-.49***	.47***

\*P<.05 \*\*P<.01 \*\*\*P<.001

with more resources and taking antidepressants for the first time are prescribed a newer agent and the SSRIs are newer agents known to many practitioners and consumers.

It is important to keep in mind that the antidepressant prescribed is simply coded as SSRI or NOT SSRI. The NOT SSRI group makes up multiple other antidepressant classes including other new antidepressant agents. Unfortunately this study is limited to a sample size of 100. Therefore, individual antidepressant agents may not be evaluated properly. SSRI antidepressants are overly represented in this study sample. A final regression in Chapter 9 will be conducted with the antidepressants in their individual classes.

Two initial treatment process variables are statistically significant in relation to follow-up depression symptoms. Prescribers who are initially friendly and informative are likely to have consumers with lower follow-up depression scores ( $r = -.35, p < .001$ ). Consumers with a positive anticipated value of antidepressants ( $r = -.21, p < .05$ ) have a better clinical outcome at follow-up. Consumer beliefs measured during the first interview are correlated with clinical outcome measured approximately two months later.

Three follow-up process variables are significantly correlated with follow-up depression scores. Prescribers who monitor medication use and exhibit a participatory manner in problem solving ( $r = -.23$ ,  $p < .01$ ) have patients with better clinical outcomes. Consumers who evaluate medication use positively ( $r = -.45$ ,  $p < .001$ ) and who have fewer medication omissions ( $r = .22$ ,  $p < .05$ ) have fewer depression symptoms at follow-up.

Prescribers with a strong communication style, approachable, informative, participatory manner in problem solving and monitor medication use, are more likely to have patients with better clinical outcomes. Prescribers with a strong communication style are more likely to have patients with positive beliefs about their antidepressant, before taking the medication and after use. Consumers with positive beliefs about their medication tend to take the medication as prescribed, rarely missing doses. Regular use of the medication is related to fewer depression symptoms at follow-up.

#### B.2 Depression Score Change

Consumer age and change in depression scores are correlated ( $r = -.29$ ,  $p < .01$ ). Older consumers experienced less

change between initial depression and depression at follow-up. During the initial interview, older participants reported lower depression scores, however follow-up depression scores are not correlated with age.

Three initial treatment process variables are related to treatment outcome. Prescriber Initial Communication Style is positively correlated with depression change ( $r=.43$ ,  $p<.001$ ). Consumer knowledge about the regimen is positively correlated with depression change ( $r=.22$ ,  $p<.01$ ). Anticipated value of antidepressant medication is positively correlated with depression change ( $r=.30$ ,  $p<.001$ ). Consumer beliefs about antidepressants are positively correlated with change in symptoms. Consumers who know more about the regimen and believe antidepressants are a useful treatment experience better clinical outcomes. The strongest relationship exists between prescriber communication and patient outcome. Approachable and informative prescribers have patients with greater change in depression symptoms.

Follow-up treatment process variables are related to depression change. Prescriber follow-up is positively related to change in depression scores ( $r=.36$ ,  $p<.001$ ). Evaluation of antidepressant use explains 25 per cent of the variation in

depression change ( $r=.51$ ,  $p<.001$ ). Treatment omissions are negatively related to depression change ( $r=-.27$ ,  $p<.01$ ). Prescribers with a participatory manner in problem solving and monitor medication use are more likely to have patients with better clinical outcomes. Evaluation of antidepressant use is positively related to depression change. The strong correlation reinforces the value of asking consumers about the positive and negative aspects of the medication prescribed when monitoring medication use. Fewer treatment omissions is related to greater change in depression scores.

### B.3 Treatment Goal

Treatment goal status at follow-up is correlated with initial and follow-up treatment process variables. Prescriber Initial Communication Style ( $r=.26$ ,  $p<.01$ ) and Pharmacist Initial Communication Style ( $r=.20$ ,  $p<.05$ ) are related to goal status. Providers with better communication skills are more likely to have patients who have achieved their treatment goal. Consumer anticipated beliefs about antidepressant value ( $r=.19$ ,  $p<.05$ ) and evaluation of antidepressant use ( $r=.41$ ,  $p<.001$ ) are related to attaining treatment goal. Consumer behavior measured as treatment omissions ( $r=-.18$ ,  $p<.05$ ) is negatively related to achieving treatment goal.

Outcome variables are strongly related to treatment goal status. Depression score at follow-up is negatively related to goal status ( $r=-.49$ ,  $p<.001$ ). Consumers with high depression scores at follow-up are less likely to achieve their treatment goal. Consumer change in depression is positively related to treatment goal status ( $r=.47$ ,  $p<.001$ ), those with greater change in depression are more likely to attain their treatment goal. The high correlations suggest that depression symptoms at follow-up, depression symptom change and treatment goal are measuring the same concept.

The positive correlations existing between prescriber initial communication style, pharmacist initial communication style, anticipated beliefs, evaluation of antidepressant use, medication use and achieving consumer treatment goal supports further analysis in this area. Consumers with communicative providers initially are more likely to achieve their treatment goal. Consumers with positive beliefs about the antidepressant are more likely to achieve their treatment goal. Consumers adhering to the medication regimen are more likely to achieve their treatment goal. The study model does not explain further how these process variables are related.

The lack of a correlation between prescriber follow-up, pharmacist follow-up and treatment goal status is noted. Treatment goals improve, stay the same, and get worse for consumers with communicative and non-communicative providers in follow-up. Prescriber follow-up is negatively correlated with follow-up depression scores and positively correlated with change in depression. While consumers with high prescriber follow-up have lower depression symptoms at follow-up, treatment goal status is not correlated.

#### C. MULTIVARIATE ANALYSIS

This section presents results of multivariate analyses predicting health outcomes related to antidepressant treatment. The purpose of this analysis is to test how strongly background factors and treatment process variables are related to treatment outcomes. The multivariate analysis is conducted using hierarchical regression procedures. This approach to the regression analysis involves adding variables to the model equation in sets in directional order of the treatment process. This analysis is useful for understanding the contribution each set of variables makes to the model.

### C.1 Follow-up Depression Scores

In step one of the analysis the background factors: age; gender; college education; household income; initial depression symptoms; previous antidepressant use and type of antidepressant prescribed along with the initial treatment process variables: prescriber initial communication style; pharmacist initial communication style; knowledge index; and anticipated value of antidepressant medication. The resulting model explains 18 percent of the variance in follow-up depression symptoms ( $F=2.9$ ,  $p<.01$ ). Prescribers considered friendly and informative predicted lower depression scores at follow-up ( $\beta=-.32$ ,  $p<.001$ ), contributing most to the model.

A backward elimination was conducted regressing all 15 predictor variables onto follow-up depression score. The resultant model predicts 34 percent of the variation in follow-up depression symptoms ( $F=13.3$ ,  $p<.001$ ). Evaluation of antidepressant use contributed most to predicting follow-up depression scores ( $\beta=-.42$ ,  $p<.001$ ). Prescriber Initial Communication Style and initial depression symptoms are significant contributors to the model. Lower depression symptoms initially predicts lower depression scores at follow-up. Having an approachable and informative prescriber predicts

lower depression scores at follow-up. Results of the analysis are presented in Table 28.

### C.2 Depression Score Change

Regressing consumer background factors and initial treatment process variables onto change in depression resulted in findings similar to previous analyses. Consumer age, prescriber communication style and consumer anticipated belief in medication predict greater change in depression scores. Prescriber Initial Communication Style contributed most to the model ( $\beta = .31$ ,  $p < .001$ ). Older consumers experienced less change in depression symptoms during treatment ( $\beta = -.22$ ,  $p < .05$ ). Consumers anticipating the antidepressant to be useful experienced greater change in depression scores. Communicative prescribers, younger age and positive belief in antidepressants predict better treatment outcome.

The 14 variables were regressed onto the dependent variable using a backward elimination regression procedure. Predictors of change in depression score are presented in Table 29. All of the follow-up treatment process variables remained in the model predicting change in depression score. The variables contributing significantly to the regression equation are consumer age ( $\beta = -.19$ ), prescriber initial communication

Table 28: Multiple regression equations of background factors and treatment process variables predicting depression symptoms at follow-up (N=97)

Variable	b	SE	beta	t	b	SE	beta	t	b	SE	beta	t
intercept	30.8	7.5	.00	4.1***	37.2	8.4	.00	4.4***	37.5	4.5	.00	8.3***
age	.02	.07	.03	.31	.01	.07	.01	.11				
gender	-1.1	1.8	-.06	-.61	-1.1	1.8	-.06	-.62				
college education	-.84	1.7	-.05	-.50	-.74	1.8	-.04	-.42				
household income	-.00	.00	-.13	-1.3	-.00	.00	-.11	-1.1				
depression symptoms initial	.20	.11	.19	1.8	.22	.11	.20	1.9	.29	.09	.27	3.2**
previously taken antidepressant	.98	1.6	.06	.63	1.1	1.6	.97	.71				
SSRI type antidepressant	-3.3	1.8	-.18	-1.9	-2.9	1.8	-.16	-1.6	-3.0	1.5	-.16	-1.9
prescriber initial communication style	-.96	.25	-.38	-3.9***	-.81	.26	-.32	-3.1**	-.71	.22	-.28	-3.1**
pharmacist initial communication style	.13	.20	.06	.66	.12	.20	.06	.59				
knowledge index					-.03	.29	-.08	-.80				
anticipated value					-.35	.24	-.15	-1.4				
prescriber follow-up												
pharmacist follow-up												
evaluation of antidepressant use									-1.3	.27	-.42	-4.7***
medication omissions												
F-ratio	3.2**				2.9**				3.3***			
R-Square	.25				.27				.37			
R-square (adj)	.17				.18				.34			

\*P<.05 \*\*P<.01 \*\*\*P<.001

Table 29: Multiple regression equations of background factors and treatment process variables predicting depression change (N=97)

Variable	b	SE	beta	t	b	SE	beta	t	b	SE	beta	t
intercept	-7.9	9.0	.00	-.89	-10.3	5.6	.00	-1.9	-9.6	8.8	.00	-1.1
age	-0.2	0.1	-.22	-2.2*	-.15	.07	-.19	-2.3*	-.17	.07	-.20	-2.4*
gender	-.76	2.2	-.03	.35								
college education	-.54	2.2	-.02	-.25								
household income	.00	.00	.10	.93								
previously taken antidepressant	-.44	2.0	-.02	-.22								
SSRI type antidepressant	1.6	2.2	.07	.74					2.3	2.0	.10	1.2
prescriber initial communication style	.99	.32	.31	3.1**	.72	.30	.22	2.4**	.73	.31	.23	2.4*
pharmacist initial communication style									-.17	.22	-.06	-.77
knowledge index									.09	.31	.03	.29
anticipated value									-.17	.31	-.06	-.56
prescriber follow-up					1.3	.76	.17	1.8*	1.6	.79	.20	2.0*
pharmacist follow-up					-1.8	1.1	-.15	-1.7*	-1.7	1.1	-.14	-1.5
evaluation of antidepressant use					1.6	.34	.42	4.8***	1.7	.41	.45	4.2***
medication omissions									.96	1.5	.06	.64
F-ratio	3.5***				12.6***				6.5***			
R-Square	.29				.41				.43			
R-Square (adj)	.21				.38				.36			

\*P<.05 \*\*P<.01 \*\*\*P<.001

style (beta=.22), prescriber follow-up (beta=.17), pharmacist follow-up (beta=-.15), and evaluation of antidepressant use (beta=.42). The model explains 38 percent of the variation in depression score change ( $F=12.6$ ,  $p<.001$ ).

Prescriber communication is positively related to change in depression score. Better communicators have patients with better outcomes, measured as greater change in depression scores measured at treatment start and again approximately 2 months later. Pharmacist communication at follow-up is negatively related to change in depression score. Pharmacists are seeing the consumers who continue treatment and are not experiencing great change in depression scores. Older consumers are not feeling that much different at follow-up compared to initial depression symptoms. Consumers evaluating antidepressant use positively experience greater change in depression symptoms.

#### D. SUMMARY

In general, consumers felt better at follow-up than before starting antidepressant treatment. Follow-up depression scores were lower than initial depression scores for 93 consumers. Change in depression scores show that 7 consumers had no change or a worsening of depression symptoms. Consumer treatment

goals were achieved for the most part. Only 18 individuals reported no change or a worsening of their treatment goal during the two month study period.

Factors predictors better mental health outcomes did not include medication omissions. Adherence to medication was not the simple answer to feeling better. Better clinical outcomes are predicted by prescribers' and pharmacists' communication styles and consumer evaluation of antidepressant use.

Communicative prescribers are more likely to have patients with lower follow-up depression scores. Results presented in previous chapters suggest the path to improved health outcomes begins with a communicative prescriber. The physician who is friendly, informative and able to personalize the initial encounter impacts consumer anticipatory beliefs about medication. Consumers with positive beliefs in medication are more likely to return to the prescriber for a follow-up visit. The communicative prescriber in follow-up leads to a positive evaluation of medication use by the consumer. Belief that the medication is beneficial in addition to having a communicative prescriber leads to continued use of the medication. The follow-up visits with the prescriber and the pharmacist lead to better treatment outcomes.

## CHAPTER NINE

## SUMMARY AND CONCLUSIONS

This chapter attempts to integrate study results with current theory and research. The chapter begins with an overview of study findings. The significant findings are discussed with consideration of existing research studies. Implications for current theory and methodology are considered. Study limitations affecting validity of findings and generalizability of the results are examined. Finally, implications for further research are presented.

## A. OVERVIEW OF SIGNIFICANT FINDINGS

Consumers receiving treatment for depression in the community setting report moderately severe depression symptoms prior to starting antidepressant medication treatment. One-third of the sample reported that they had thought about death or suicide. A majority of the sample reported feeling sad, uninterested in things, low energy, difficulty in making decisions and that they experienced sleep problems. Consumers reported that they cried often and for no apparent reason, felt worthless, were irritable with loved ones and were barely able to keep going.

Consumers distinguish between their prescriber's and their pharmacist's care. Prescribers are approachable and informative concerning antidepressant treatment. They are friendly, ask questions, listen to concerns and give clear instructions on taking antidepressant medication when the medication is initially prescribed.

Pharmacists are also approachable and informative when dispensing antidepressants, although less so than prescribers. According to consumers, pharmacists are not helping them with their concerns about antidepressant medications. While consumers report receiving clear instructions they are not given clear explanations of what to expect from the antidepressant.

The lack of pharmacist communication is not surprising considering previous research results in the area of pharmacist counseling. A study utilizing a shopper methodology to describe community pharmacists' interaction with consumers reported low pharmacist communication. Little interviewing action was observed by pharmacists (Mason, H. L, 1979; Mason & Svarstad, 1984). Similarly, Wiederholt and colleagues (1992) report that 54 percent of consumers do not receive consultation from pharmacists for new prescriptions. Consumers are

knowledgeable about taking antidepressant medication. Consumers in this sample knew what to take and when. However, a lack of clear understanding persists concerning expected length of treatment and appropriate time to evaluate treatment effect. Only one-third of the consumers were aware that appropriate treatment for depression requires at least six months. One-third of the consumers did not know antidepressants require at least two to six weeks before evaluating for treatment effect. Controlling for background factors, two factors predict greater knowledge of antidepressant use, a college education and prescriber initial communication style.

Consumers starting antidepressant medication anticipate that the treatment will be effective. While concerned about medication side effects, the potential benefits are believed to outweigh the potential costs. Antidepressant medication is considered an effective treatment for depression and a good option to consumers.

Prescribers' communication style predicts consumers' anticipated beliefs about the value of antidepressant medication. This factor is predictive of consumer beliefs while controlling for consumer gender, age, education, income,

initial depression symptoms, first time antidepressant use, SSRI class of antidepressants, knowledge index, and pharmacist communication style. Consumers who perceive their prescriber to be approachable and informative believe in the value of antidepressant medication.

Thirteen percent of consumers did not have a follow-up visit or phone contact with the prescriber following the initial prescribing of the antidepressant. Seventeen percent of consumers had a prescriber follow-up with little monitoring or problem-solving done during the visit. Less than half of the sample reported their prescriber had a strong participatory problem solving style and a strong medication monitoring style during the follow-up visit. For the most part, prescribers do ask consumers how the medication is working. Consumers report that prescribers help them solve medication problems and monitor their medication use. The prescriber follow-up scores are not strong in both communication categories. However, consumers report that prescribers do some follow-up with them.

Pharmacists' follow-up communication style is not rated highly by consumers. Pharmacists rarely exhibit participatory problem solving skills when refilling antidepressant prescriptions. Consumers were asked about medication concerns

when refilling the antidepressant prescriptions, but did not feel encouraged to express problems. Pharmacists rarely monitor medication use. Treatment adherence and side effects were monitored by only one-quarter of the pharmacists.

Prescriber initial and follow-up communication styles are highly correlated. Prescriber initial communication style predicts prescriber follow-up style. Prescriber behavior is stable. An approachable and informative prescriber during the initial patient-physician encounter problem-solves with the consumer and monitors medication use during the follow-up encounter.

Pharmacist initial and follow-up communication styles appear to be less stable in this study. However, the study participants are consumers in the community. Consumers may go to different pharmacies and therefore see a different pharmacist in follow-up. Consumers may use one pharmacy and see a different pharmacist during the follow-up visit. Pharmacist behavior is probably stable. However, study findings do not suggest this. Prescriber initial communication style is more predictive of pharmacist follow-up communication style than pharmacist initial communication style.

Consumers evaluate antidepressants positively overall in follow-up. Consumers feel better for the most part and are not bothered to a great extent by the medication. Some consumers experienced troublesome side effects already reported as problematic in the literature, anxiety, diarrhea, food cravings and stigma about taking an antidepressant. Some consumers noted a new ability to use helpful coping skills and self-care behaviors when taking the antidepressant. Consumers mentioned that changing thought patterns and behaviors were very difficult and sometimes impossible prior to taking medication.

Predictors of a positive evaluation of antidepressant use are first time use of antidepressants, anticipating a positive value of antidepressants and a communicative pharmacist in follow-up. While controlling for background factors and initial treatment process variables, these factors remain significant predictors. The initial measure of consumer beliefs about antidepressants, anticipated value of antidepressants, is the best predictor of the follow-up measure of consumer beliefs, medication evaluation.

Consumer evaluation of medication use is predicted by anticipated value of antidepressants. The anticipated value of antidepressants is influenced by prescriber communication

style. Prescribers using approachable and informative communication styles influence consumer beliefs about their medication. Consumers are more likely to believe the medication is useful and take the antidepressants when they have had a communicative prescriber. Prescribers have consumers who view the treatment as beneficial to themselves when the doctor explains: 1) how the medication works; 2) its usefulness for other people; 3) the usual side effects; and 4) how to deal with the side effects effectively. Prescribers with an interest and concern for the consumer influence consumer views of treatment. Prescriber communication style influences consumer medication beliefs initially and beliefs measured about two months later in time.

First time use of antidepressants is related to a positive evaluation of antidepressant effect. This relationship could exist because consumers taking antidepressants previously have a different form of depression, one that is more treatment resistant. Alternatively, individuals who have taken antidepressants previously may have fewer resources, such as fewer health insurance benefits or fewer close supportive social ties, than individuals experiencing depression for the first time. A strong social support network combined with

economic resources are important factors in reducing daily stress. Supportive resources are instrumental to having positive daily experiences.

Pharmacist follow-up is related to a positive evaluation of medication use. Considering the lack of strong communication style exhibited by pharmacists during follow-up this finding is somewhat confusing. Communicative pharmacists might influence consumers to evaluate medication use positively. This may occur by helping consumers with problematic side effects or showing concern about medication effectiveness. However, the study results indicate that pharmacists are not that communicative in follow-up. It is more likely that consumers who evaluate antidepressant use positively are those who refill their prescription and see their pharmacist.

Many consumers take their antidepressants as prescribed. They also take extra doses as well as omit doses purposely. Consumers forget to take doses. Overall, antidepressants are not taken exactly as prescribed. Twenty-four percent of consumers discontinued the antidepressant within the first two months of treatment. Twelve stopped taking the medication in the first month of use.

Treatment omissions are predicted by consumer evaluation of medication use and prescriber communication style. While controlling for consumer background factors, knowledge of the regimen, anticipated value of antidepressants and pharmacist communication style, consumer beliefs and prescriber style remain significant. The same results are found when looking for predictors of treatment discontinuation.

Depression symptoms at follow-up were lower for most of the consumers. Consumers felt interested in things again and found pleasure in being with friends and family. They no longer had appetite problems or thoughts of death or suicide. Consumers were hopeful and felt less anxious. Symptoms that showed improvement but continued to be problematic were lack of energy, trouble with sleep, trouble concentrating and feeling sad.

Comparing depression symptoms initially and at follow-up resulted in depression symptom change. The greater change in symptoms, that is, less depression, is predicted by consumer age, prescriber initial and follow-up communication style, pharmacist follow-up communication style and evaluation of antidepressant use. Nearly 40 percent of the variation in depression symptom change is predicted by these factors.

Older consumers reported fewer depression symptoms initially. Follow-up depression symptoms did not differ that greatly from their initial scores because fewer initial symptoms were reported. In this very small sample of older people<sup>1</sup>, the data show older individuals receive antidepressant prescriptions with fewer initial depression symptoms than younger people experience.

This finding could be the result of poor prescribing by physicians. Older people in this sample may have received antidepressant prescriptions because prescribers consider treatment of older people less important than that of younger more productive individuals. This practice reflects an "ageist" attitude (Markides, 1989).

Since health in older people is influenced by social, behavioral and socioeconomic factors, attending to depressive symptoms in the elderly may require a multi disciplinary team, including social workers, pharmacists, physicians, family and sufficient time that is more easily substituted with an antidepressant prescription (Ory and Bond, 1989). Waitzkin and colleagues (1993) discuss the difficulties in discourse between

---

<sup>1</sup>"Older" in this study sample refers to 5 participants aged 60-84 years.

physicians and older individuals during the medical encounter. Despite clear communication between doctor and patient, the older patient's contextual issues that are of most concern to her are not improved. Medical interventions rarely focus on contextual issues.

Alternatively, prescribers could be prescribing antidepressants appropriately to older individuals reporting few depressive symptoms. Prescribers may be sensitive to the fact that depression differs somewhat for older individuals. Older individuals report more physical symptoms, such as abdominal complaints, sleep disturbances, lethargy and constipation than middle-aged people (Blazer, D., George, L., & Landerman, R., 1986). Newmann and colleagues (1991) reported similar age differences in depression symptoms which she described as depletion versus depressive symptoms. Prescribers may consider an older person depressed when only a few of the usual depression symptoms are expressed. Considering that suicide rates are higher among the elderly than in other age groups, prescribing an antidepressant could be considered good practice (Manton, K.G., Blazer, D.G., & Woodbury, M.A., 1987).

This leads to the consideration that the twelve item depression score utilized in the study does not measure

depression in older people as well as in younger individuals. The depression symptom items do not consider abdominal pain or constipation while instead focusing on feelings, ie. feeling hopeless, feeling anxious. Prescribers may have found more depressive symptoms in the older individuals than these research data show.

The literature on health and aging has established that we are living longer but with more disability. Prominent in this literature is the work by Lois Verbrugge (1984, 1989). Aging can be difficult and painful because of deteriorating health. Aging can be difficult in a culture focused on youth and activity. Changes in physical activities, social roles and bereavement are stressors that powerfully influence overall mood and self-esteem (Murphy, E. & Brown, G.W., 1980). It is important to find causes and controls for depression so that individuals can enjoy their later years.

Prescriber and pharmacist communication style impact consumer outcome. This prospective study suggests that a causal relationship exists between treatment process and treatment outcome. Consumers reported initial symptoms, beliefs concerning anticipated value of antidepressant treatment, and prescriber and pharmacist communications during

the initial encounters. Two months later, consumers reported current depressive symptoms, evaluation of medication use, and prescriber and pharmacist follow-up communications. Controlling for background factors, provider communication predicted treatment outcome.

A reduction in depression symptoms is related to communicative prescribers. The findings contribute to health outcomes research as it relates to provider-patient relationships. The data show that better communication between providers and consumers results in more effective medical care as measured by fewer depressive symptoms. Prescribers who are described as friendly, informative, effective listeners, problem solvers and monitors of medication use improve consumer treatment outcomes in this study sample.

Robinson and colleagues (1995) found that patients reporting that their physician advised them about treatment recommendations in addition to prescribing an antidepressant adhered to the medication and the cognitive behavioral strategies in the following months. The same research group found that a reduction of depressive symptoms occurred for intervention patients with major depression but not minor depression (Katon, W., Robinson, P., Von Korff, M., et al,

1996). Physician recommendations regarding planning pleasurable activities, problem solving, challenging depressive thoughts, and planning activities that boost confidence were helpful to consumers with major depression.

The present study differs from previous research because prescriber communication is described in a general way and then constructed as a communication style and related to treatment outcome. Consumers report their overall sense of how the physician communicated with them. Previous work focused on overt messages by prescribers and neglected the patients' perception of the message.

The study findings indicate that treatment omissions are not related to treatment outcomes. Katon and colleagues (1996) report that adherence with medication and behavioral interventions resulted in more favorable depression outcomes among patients with major depression. The present study measure of treatment omissions is less reliable than other forms of measurement and may be the reason for the lack of relationship between adherence and outcomes. Alternatively, the complexities of treating depression may require more than complete adherence with the medication. Successful treatment outcomes may be the result of antidepressant medication in

addition to a working relationship with the physician. The effective physician-consumer relationship may improve coping skills, feelings of confidence and other helpful self care behaviors that are necessary in overcoming depression.

## B. THEORETICAL CONTRIBUTIONS AND ISSUES

### B.1 Theoretical Contributions

This study examined consumer perspectives of antidepressant treatment using a dynamic treatment process model. The dynamic treatment process model is based on the Health Communication Model developed following research on doctor-patient encounters and subsequent patient behavior. The HCM implies that the dimension of time plays a part in understanding the treatment process.

The present study model articulated the dimension of time and measured consumer beliefs initially and again about two months later. Consumer beliefs and behaviors concerning treatment may change with ongoing experiences and follow-up encounters with prescribers and pharmacists. The study adds to health care research by using a theoretical model with a dynamic treatment process.

The study findings confirm and extend the theoretical framework presented in the Health Communication Model.

Provider communication predicts consumer medication beliefs initially. Consumer beliefs influence medication taking behavior during the treatment process. Provider communication influence consumer health related outcomes directly and through consumer beliefs about the medication.

The research model envisions the treatment process involving multiple providers of care rather than focusing exclusively on the physician. In the case of treatment for depression, consumers often see more than one health care provider. Often when receiving antidepressant prescriptions, the consumer sees a prescriber and a pharmacist during the treatment process. The study model attempts to understand the treatment process by examining the path a consumer takes when entering treatment for depression.

Provider communication styles, defined in previous research, were used to create assessment tools of the physician-consumer encounter. Consumers rated prescribers' and pharmacists' communication styles. This research extends the provider-patient relationship literature with the use of scales measuring provider communication styles. Consumer perspectives of physician's and pharmacist's communication styles during the first encounter and the follow-up encounter can be obtained

with the study instruments: Prescriber Initial Communication style; Prescriber Follow-up Communication Style; Pharmacist Initial Communication Style; and Pharmacist follow-up Communication Style.

Study results add to our understanding of the different contributions prescribers and pharmacists make in medication treatment. Prescribers strongly influence the entire treatment process. Initial prescriber communications impact consumer anticipated beliefs about the antidepressant. Consumer beliefs influence follow-up with prescribers and pharmacists and evaluation of antidepressant use. Evaluation of medication use influences medication taking behavior and treatment outcome.

Prescriber initial and follow-up communication styles are stable. Prescribers rated as approachable and informative initially are rated as using a participatory manner in problem solving in follow-up. Prescriber Initial Communication Style and Prescriber Follow-up Communication Style are similar within prescribers. Prescriber communication style varies among prescribers. In other words the communication scales measure differences between prescribers.

## B.2 Theoretical Issues

Pharmacists' approaches to communication with consumers of antidepressant treatment differs from prescribers' approaches. Pharmacists tend to be less communicative than prescribers. This finding is similar to previous research concerned with communicative messages received by consumers from prescribers and pharmacists (Morris, 1982; Wiederholt, et. al, 1992). The research model does not address this issue sufficiently to understand the lack of communication by pharmacists. The data suggest that consumers have questions or concerns but do not talk with the pharmacist. This difference between the professions needs to be studied.

A number of theoretical perspectives could be used in studying the communication between pharmacists and consumers. Similar to research on the medical encounter between physicians and patients, studies could be conducted using provider perspective, patient perspective, visual/audiotaped encounters, and medical records. Focus could be directed to social structural barriers and enhancements of communication between pharmacists and consumers.

Studies have included interviews and surveys of consumers about the encounter (Weiderholt, et. al., 1992). Pharmacists

have been surveyed concerning their professional attitudes toward counseling (Kirking, 1982; Ortiz, et. al., 1992). Surveyors have posed as patients and rated pharmacist counseling behavior (Mason, 1979). Researchers have observed the pharmacist - patient interaction and found that individual pharmacists are the most important determinant of the level of patient counseling that occurs (Berardo, et. al., 1989). More research is needed in the area of pharmacist - consumer communication and how it impacts treatment outcomes.

The social interaction between a pharmacist and consumer in a community pharmacy could be studied with a symbolic interactionist perspective. According to the symbolic interactionist theory people create a shared definition of the situation with an agreement about who they are, what actions are appropriate and how their behaviors should be interpreted. The shared understandings underlie the actions that occur. This perspective could frame a study of pharmacist - consumer interactions in different practices. Different types of interactional processes could be related to treatment outcomes.

Denzin (1992) discusses the central nature of communication in studying culture using an interactionist approach. His discussion involves the study of communication

technologies and how they shape messages. It appears this type of research could involve the technologies in the pharmacy but also the messages delivered through multimedia.

Social exchange theory suggests that people establish and maintain relationships only if they find the benefits outweigh the costs. The theory takes into account the rational tendencies of individuals, by trying to maximize rewards while minimizing costs. This theoretical perspective would take into account the structural layout in most community pharmacies that results in a lack of privacy in the pharmacy area. Perhaps consumers decide that the cost of someone overhearing the conversation is greater than the possible reward of the pharmacists input.

Another theoretical perspective potentially useful in studying the communication between pharmacists and consumers is an organizational approach. This framework would allow the researcher to examine differences in communication related to the work environment. For example, the number and the ability of coworkers assisting the pharmacist could influence the amount of time a pharmacist has available to talk with consumers. In addition, the pharmacy culture sets the tone for

the type of consumer-pharmacist interactions that occur normally.

Research measuring consumer satisfaction and evaluations of health care providers is often criticized. Consumers' inflated evaluations of doctors and health care services reduce the usefulness of satisfaction measures. The current study findings show that consumers do not evaluate every aspect of their health care favorably. Consumers have made a distinction between their prescriber's and pharmacist's communication styles. Pharmacists are not rated as highly as prescribers in important provider communication styles. This finding reduces the concern that patient perspectives are overly inflated and not representative of the actual encounter.

#### C. METHODOLOGICAL ISSUES

The study makes a substantial contribution to the literature on pharmacy communication and adherence monitoring. The method of enrolling consumers through community pharmacies with the help of pharmacists is novel. Multiple community pharmacy locations, most unrelated to each other, were involved in the study. Consumers completed two telephone interviews separated by at least two months in time. Consumers shared information concerning treatment experiences with prescribers,

pharmacists, antidepressants, beliefs about medication and use, taking the antidepressants and their depression.

Consumers in the community pharmacy setting are willing to complete several telephone interviews concerning their treatment process over a two month period. A prospective study conducted by telephone in addition to the postal service is difficult and possible. Consumers were delighted to contribute their perspectives and pleased their thoughts were heard. This study method offers a prototype for studying other health conditions.

This study builds on previous work by Lin and colleagues (1995). This research group identified consumers by their antidepressant prescription. Study participants were asked about educational messages received concerning the antidepressant, previous antidepressant use and other treatment plans discussed with their doctor. Medication use beyond 30 days was predicted by consumer knowledge, prior experience with antidepressants and doctor messages concerning additional things to do to feel better.

This research differs in that multiple community pharmacies were used as enrollment sites rather than pharmacies united by a single health maintenance organization. This

difference offers a sampling of pharmacy, prescriber and consumer cultures. In addition, this method offers a sampling of organizations and the individuals they connect. The various connections represent the situation for many individuals receiving health care in the United States. This method adds to the richness of the study findings.

The study builds on research of Lin and colleagues by interviewing consumers twice about medication beliefs, experiences with prescribers and pharmacists, depression symptoms and how they take the medication. Pharmacy research as well as research examining the effects of health beliefs has previously measured consumer beliefs and behavior at a single point in time. This research uses a prospective design. Consumers are asked about anticipated beliefs of medication value as close to the beginning of treatment as possible. Consumers then evaluated antidepressant use and explained how they were taking the medication two months later. The prospective study plan is difficult to do but can be done in the pharmacy setting.

Pharmacist help in identifying potential study participants varied greatly. A few of the participating pharmacists were very helpful in asking consumers if a

researcher could contact them concerning a medication study. Pharmacists were rarely openly opposed to helping with the research however. Many pharmacists were skeptical about the study. Some pharmacists agreed to participate and never identified a potential participant. Some pharmacists actively enrolled people into the study. The posting of signs in the pharmacies announcing the study to consumers and asking them to call about enrollment improved the size of the study sample substantially. Consumers wanted to participate more than pharmacists wanted to ask them about participation.

#### D. LIMITATIONS

The greatest limitation to the study findings is the lack of validation and reliability studies conducted on the study instrument. Instrument validity is important in assessing that the scales have measured what was intended to be measured. The tendency toward consistency found in repeated measurements is referred to as reliability. Establishing reliability and validity is a concern for the depression scale, the provider communication scales, consumer beliefs about the medication and treatment omissions.

In the case of the depression symptom items, the researcher is fairly confident about the validity and

reliability. First, the items were borrowed from similar scales that have been tested for validity and reliability. Second, Cronbach's alpha (Cronbach, 1951) measure of internal consistency shows the depression items are highly intercorrelated. The high inter-item correlations suggest the items are all measuring the same thing. However, further research clearly is needed to establish validity and reliability.

The Brief Medication Questionnaire has been validated with specially designed containers that electronically measure each time the cap is removed. Validation studies show that questions focused on medication problems as well as benefits reasonably measure medication adherence. However, the studies show that 20 percent of repeat noncompliers are missed in self-report. Therefore, this study sample may be underreporting treatment adherence as well.

Provider Communication Style scales show predictive validity. In this study, the Prescriber Initial Communication Style scale predicted consumer anticipated beliefs about antidepressants. Pharmacist Follow-up Communication Style predicted consumer evaluation of antidepressant use. Prescriber Initial and Follow-up Communication Styles as well

as Pharmacist Follow-up Communication Style predicted change in depression symptoms.

The greatest concern is the lack of construct validity of the provider communication style scales. Construct validity is concerned with the extent to which a particular measure relates to other measures consistent with theoretically derived hypotheses concerning the concepts being measured. Construct validation requires a pattern of consistent findings involving different researchers using different theoretical structures across a number of different studies. Such validation could be achieved using other data sources such as taping the pharmacist-consumer encounter. The tapes would be encoded with pharmacist communication style and then related to treatment outcomes. The outside observer's perspective of provider friendliness, informative manner, participatory problem solving manner and monitoring behaviors could be compared to consumer perspectives.

Sometimes validating research tools is quite difficult. Although nothing replaces construct validity there are other types of validity to consider when weighing study findings. The communication scales were developed based on observational research of doctor-patient encounters. Key concepts observed

in doctor-patient encounters were defined as important factors in treatment adherence. The content of that study framed the items used in characterizing provider communication styles for the present study. This is a form of content validity. The provider communication style scales can be considered to have content validity if the reader can believe that the key concepts from the observational research were used appropriately in creating items for consumer use. The concepts used were worded in a way that consumers could respond to quickly.

Causal modeling of processes over time (longitudinal analysis) is best studied with the use of path analysis. Path analysis provides quantitative estimates of the total direct and indirect effects of one variable on another (Singleton, et. al., 1988). Path analysis requires the standardization of the various partial-regression coefficients so that there is a common footing. The objective is to compare relationships presumed to hold between several variables to observed data in a study, in order to examine the fit of the model to the data. Path analysis should be conducted on this data in order to determine if the model should be retained for further testing or modified (Loether & McTavish, 1974).

The prospective study period is limited to two months. Considering that antidepressant treatment should be assessed at two months, a longer study would improve our understanding of the treatment process and consumer outcomes. A prospective study with follow-up interviews at 2, 4, 6 and twelve months would add to the understanding of provider influence in consumer beliefs, behaviors and outcomes. However, sometimes the very process of measuring a phenomenon can induce change in the phenomenon itself. This reactivity brings a challenge to longitudinal research.

Using a variety of community pharmacy settings reduced control of important study factors. The use of 1 HMO pharmacy setting could have allowed for all eligible individuals to be identified and asked to participate in the study. The use of one site may have allowed for outside observations of pharmacist and consumer or prescriber and consumer. Pharmacy and medical records may have been more easily assessed. One study site could have been beneficial in many ways.

The present study utilized a sampling of community pharmacies in the county in order to have a representation of central and periphery care and various styles of pharmacy management in part related to health insurance benefits. The

researcher believes this method of sampling brings a diversity of practice cultures and relationships between providers and consumers to the study findings. However, limited time and resources prevented further data collection focusing on these areas.

The measure of treatment adherence by self-report alone is a limitation to study findings. Self-report adherence has been compared to other compliance measures. Results suggest that self-report is under reported compared to measures considered to be more objective (Stewart, 1987). In the area of antidepressant treatment, other measures of compliance are also problematic. Pharmacy records are problematic because consumers may have received medication samples from the doctor, may refill the prescription at another location and may have a dose change by the prescriber that is not reflected in the pharmacy records. Medical records are problematic in measuring adherence because notes about prescriptions and samples are not always made. For this study the best measure of treatment adherence will be the combination of interview data and pharmacy records.

The study design planned to interview consumers as close to the start date of antidepressant medication as possible.

The enrollment of consumers through pharmacies made interviewing prior to starting the medication impossible. Initial beliefs are the most desirable because then changes in beliefs due to medication use and follow-up visits can be discerned more easily. The study attempted to measure anticipated beliefs first and then later collect beliefs concerning medication use.

The study design planned that pharmacists would identify all consumers meeting study criteria and ask about study enrollment. This was not how the enrollment was carried out. After the posting of a study announcement, consumers telephoned the researcher and enrolled themselves into the study. Research desires to have access to all consumers meeting study criteria in order to have a representative sample. In the case of field research, gate-keepers need to allow researchers access to all potential study participants. Previous field research has suggested that access is related to organizational resources (Mount, 1992). The study results risk being based on a sample of participants with certain qualities related to their self-selection into the project.

## E. CONCLUSIONS

The findings suggest that prescriber and pharmacist communication style is a determining factor in consumer outcomes. Communicative health care providers have consumers with better treatment outcomes. Provider communication influences the treatment process substantially. Prescriber communication has a greater influence on consumer outcomes than pharmacist communication. Strong prescriber communication increases consumer feedback about the medication and ultimately the best fit between consumer and medication is found.

Examination of social-psychological processes in the health care treatment process has contributed to prediction of treatment outcomes. Better outcomes are the result of good communication between consumer and providers. Consumers need be able to talk with their providers. Feedback concerning adverse medication effects, beneficial medication effects and concerns about using medication treatment requires a health care provider who can listen.

The treatment process model seems so obvious in retrospect. Each individual brings an expertise to the team. Prescribers know illness and treatment. Pharmacists know medication and are in an excellent position to monitor drug use

between physician visits. Consumers know themselves and what they experience. Strong provider communication styles defined as being approachable, informative, using a participatory problem solving manner and monitoring medication use increases shared understanding between provider and consumer. Shared understanding increases the likelihood of common treatment goals. Consumer behavior coincides with provider suggestions because individual circumstances have been taken into account. Better communication between the consumer and provider results in better treatment outcomes.

In the case of treatment for depression, better treatment outcomes may mean fewer suicides, fewer hospitalizations, less emotional pain and healthier people. Better treatment outcomes increase the likelihood for individuals to feel good about themselves. Families operate more smoothly, creating and nurturing happy individuals with self-confidence and positive attitudes about the future. Work environments are full of creative and productive employees. Communities organize and orient themselves in positive social directions. Better treatment outcomes through better consumer-provider communications. The data suggest this is a reasonable goal.

APPENDIX A

METHODS MATERIALS: SAMPLING PROCEDURES

## Dane County Area Zip Codes

53583	53555	53529	53597	53718	53598
53532	53590	53925	53559	53531	53523
53534	53589	53527	53558	53575	53521
53508	53711	53593	53572	53517	53528
53515	53562	53717	53719	53704	53705
53706	53703	53713	53715	53716	53714
53560					

Central and Peripheral Dane County Zip Codes  
with Community Pharmacies

53583	53555	53529	53597	53718	53560
53515	53528	53517	53572	53593	53508
53575	53558	53589	53534	53521	53523
53531	53527	53559	53925	53590	53532
53598	53562	53717	53719	53705	53706
53703	53704	53714	53716	53715	53713
53711	53707				

APPENDIX B

METHODS MATERIALS: RECRUITING MATERIALS

November, 1995

Dear Pharmacist

The University of Wisconsin School of Pharmacy is collaborating with Dane County pharmacists in a research project focused on patient experience with antidepressant medications. Antidepressant medications have been chosen because nonadherence with these medications is a major concern of health care providers. Understanding noncompliance from the patient perspective has not been well researched. We believe that knowledge gained from this study will be useful in helping patients comply with their regimens.

We are very aware of time constraints pharmacists experience every day. Therefore we have attempted to design a research project that would not burden pharmacists too greatly. In that regard, **your responsibilities are very brief.** The study has been designed so that you would only recruit 3 to 7 clients (depending on your store volume). Prescription use information would only be needed at two points in time. All envelopes and postage will be provided so there will be no costs to you.

Your help is needed in conducting this project by identifying potential study participants. **If you choose to collaborate in this research effort, we would ask you to help in the following ways:** 1) identify eligible pharmacy clients, give them a study packet with information concerning the project and request permission for a research team member to contact them; 2) collect informed consent forms when possible; and 3) provide researchers with pharmacy records of participating clients.

Pharmacy clients are eligible to participate if they meet these three criteria: 1) initiating antidepressant medication treatment; 2) 18 years of age or older; and 3) able to understand English. Whenever you think someone might be eligible it would be best if you invite them to participate and allow the researcher to verify eligibility. Clients may withdraw from study participation at any point in time. A researcher will contact the study participant invitee and complete the study protocol.

We hope you will agree to participate in this unique study. Enclosed is the patient information packet that will be distributed to eligible clients. We will be calling to ask for your participation and answer any questions or concerns you may have. If you would like to reach us please do not hesitate to call the telephone numbers listed below. Your effort and participation would be greatly appreciated.

Dara C. Bultman, R.Ph., M.S.  
Ph.D. Candidate  
Tel:608-262-3312

Mary H. Jenkins, Pharm.D.  
Graduate Student  
Tel:608-262-4723

Bonnie L. Svarstad, Ph.D.  
Professor  
Tel:608-265-2128

**Pharmacists and Coworkers:****Purpose**

The purpose of the study is to learn more about problems, concerns and benefits experienced by people prescribed antidepressant medications. The information learned from this research project is intended to improve patient care.

**Method**

The researchers would like to interview clients about their medication experience. The interviews are conducted by telephone. The interview questions require clients to recall information, therefore it would be ideal for us to be able to interview clients soon after they fill their prescription.

**Why have you been selected to help?**

We need pharmacist to help in enrollment by identifying clients who are in the beginning stages of antidepressant drug therapy.

**What does the study consist of?**

1. Identifying individuals who are recently starting any of the medications considered antidepressant drug therapy.
2. Upon recognizing an eligible participant, you tell them the University of Wisconsin School of Pharmacy is conducting a study for which they are eligible to participate.
3. Give the eligible client a "study packet" and if you have time, explain the contents to them and have them sign the consent forms at the pharmacy. When you have signed consent forms mail them to the researcher in the envelope provided in the packet.
4. Ask the eligible client for permission to have a researcher contact them and get phone number and address.
5. Record in the log that an eligible client has been identified. Note: record every situation you identify even if the person is not interested in participation.
6. Follow up with researcher by calling Dara Bultman at 262-3312 or determine when the researcher should call you on a regular basis to check on enrollment.
7. The study is occurring throughout Dane County Pharmacies and will continue until enrollment needs are met. Try to enroll 5 clients.

### **INFORMATION ABOUT RESEARCHERS**

The researchers are from the University of Wisconsin School of Pharmacy and work in the Department of Social and Administrative Pharmacy. They are interested in patient concerns with medication use. It is hoped that people have a successful experience with antidepressant medications. This study will help the researchers learn why the medication may or may not be helpful for people.

Professor Bonnie Svarstad has been teaching and conducting research at the School of Pharmacy since 1975. Her research has focused on medication compliance, doctor-patient communication and psychotropic medication use. She teaches undergraduate and graduate students.

Dara Bultman graduated from Temple University School of Pharmacy in 1986. She received her Masters Degree in Clinical Pharmacy from Purdue University in 1990. Currently, she works as a community pharmacist in Madison, Wisconsin. In addition, she is a graduate student and has been studying under Professor Svarstad since 1990. She is interested in patient experiences with their medications and is writing her doctoral thesis on the group of medications called antidepressants. /

Mary Jenkins graduated from the University of Wisconsin Madison School of Pharmacy in 1995. She works as a community pharmacist in Madison, Wisconsin and is a graduate student in the Department of Social and Administrative Pharmacy. She has been working on compliance research since 1990 and is interested in how physician monitoring and follow-up impacts patient compliance.

The researchers can be reached at the telephone numbers listed below. In the event that you reach an answering machine leave your name and number and your call will be promptly returned. If you prefer you may write to them at the School of Pharmacy.

Dara C. Bultman, R.Ph., M.S.  
Ph.D. Candidate  
Tel: 608-262-3312

Mary H. Jenkins, Pharm.D.  
Graduate Student  
Tel: 608-262-4723

Bonnie L. Svarstad, Ph.D.  
Professor  
Tel: 608-265-2128

## INFORMED CONSENT

YOU ARE INVITED TO TAKE PART IN A RESEARCH STUDY ON CLIENT EXPERIENCE WITH ANTIDEPRESSANT MEDICATIONS. IF YOU CHOOSE NOT TO TAKE PART IN THIS STUDY, YOUR MEDICAL CARE WILL NOT BE AFFECTED IN ANY WAY.

### Purpose

The purpose of the study is to learn more about problems, concerns and benefits experienced by people prescribed antidepressant medications. The information learned from this research project is intended to improve patient care.

### Why have you been selected?

You have been invited to participate because you have been prescribed an antidepressant. In order for our study to be thorough we need the experience and viewpoint of many individuals, so no matter what your experience it will aid this project. Information you can provide is important even if you stop this medication or make any changes in medications.

### What does the study consist of?

Your participation involves 4 parts: 1) completing a telephone interview within the next day or two; 2) completing a second telephone interview in two months; 3) reporting special experiences in a journal; and 4) agreeing to release your pharmacy and medical records. The interviews will each require at least 30 minutes of your time. The questions to be asked are about how you take the medicine, how it is working for you and how you view the services offered by your healthcare providers.

### Is there any benefit?

Participation in this study will not provide direct medical benefit to you. Your contribution will help fill in informational gaps on patient experience with antidepressant medications for health care providers. Upon completion of the second interview you will receive a \$20 honorarium.

### Is there any risk?

Since your treatment is not being affected, the risk of injury is extremely low. The study takes great care in protecting your confidentiality. All data will be collected and handled by a pharmacist researcher. Names will not be used in data files. The identifying key will be kept in a locked file and will be destroyed once data collection is complete.

(continued)

Are there any costs to you?

There will be no costs to you. Postage stamps and envelopes will be provided. Telephone calls will be made by the researchers.

Who will receive the results of the study?

A general summary, one that in no way identifies individuals or pharmacies will be reported to interested health care providers upon study completion.

If you change your mind....

You are free at any time to withdraw from this study. Whether or not you participate, your physician and pharmacist will continue to provide the best care available to you.

BEFORE YOU SIGN THIS FORM, PLEASE ASK ANY QUESTIONS ON THE ASPECTS OF THIS STUDY WHICH ARE NOT CLEAR TO YOU. WE WILL ATTEMPT TO FULLY ANSWER ANY QUESTIONS YOU MAY HAVE PRIOR TO, DURING, OR FOLLOWING THIS STUDY.

## AUTHORIZATION:

I, \_\_\_\_\_ have read the above and have decided to  
(your name)  
participate in the research project described. My signature also indicates that I have received a copy of this consent form.

\_\_\_\_\_  
Signature                      \_\_\_\_\_ ( ) \_\_\_\_\_  
Date                                      Telephone number

## Convenient times to be reached by telephone include:

(Check all that apply)

Daytime	Evening
Monday	_____
Tuesday	_____
Wednesday	_____
Thursday	_____
Friday	_____
Saturday	_____
Sunday	_____

\_\_\_\_\_  
Signature of Principal Investigator

Bonnie L. Svarstad, PhD.  
Professor  
Telephone: 608-265-2128

Dara C. Bultman, R.Ph., M.S.  
Ph.D. Candidate  
Telephone: 608-262-3312



**Dear Study Participant Invitee:**

**Enclosed in this packet you will find:**

- 1) Informed Consent (2 copies)**
- 2) Medical and Pharmacy Record Release Form**
- 3) Information about the Researchers**
- 4) Medication Journal and**
- 5) Stamped, addressed envelopes (2)**

**Please read the informed consent to learn about the University research project. Your participation is needed to help us learn reasons why individuals' experiences with medications like Prozac, Paxil, Zoloft and others may or may not be successful.**

**To enroll in the study sign one copy of the informed consent and sign the medical and pharmacy record release form. Return the signed forms to your pharmacist or mail them to me in one of the envelopes provided.**

**Save the second copy of the informed consent for your records. The information about the researchers is for you. The medication journal is provided to you for study purposes. It would be helpful if you would record how you are feeling as suggested on the journal weekly. At the end of the 2 month period please return it in the second envelope provided.**

**We look forward to working with you and appreciate your help.**

**Sincerely,**

**Dara C. Bultman, R.Ph., M. S.  
Tel: 608-262-3312**

**P.S. Please read and sign the consent forms today because we can not proceed with the study until we receive these from you.**

**MEDICATION STUDY CLIENT JOURNAL**  
**A WEEKLY REVIEW OF MEDICATION EXPERIENCE**

ID Number: \_\_\_\_\_ Your Initials: \_\_\_\_\_

*At the end of each week record your medication experiences by writing about:*

*\* How you feel*

*\* Noticeable medication effects (good ones and side effects)*

*\* Problems or Concerns you have about the medication and its use*

<b>W E E K</b>	<b>HOW I FEEL</b>	<b>MEDICATION EFFECTS</b>	<b>PROBLEMS WITH MEDICATION USE</b>	<b>OTHER NOTES</b>
<b>1</b>			/	
<b>2</b>				
<b>3</b>				

<b>W E E K</b>	<b>HOW I FEEL</b>	<b>MEDICATION EFFECTS</b>	<b>PROBLEMS WITH MEDICATION USE</b>	<b>OTHER NOTES</b>
4				
5				
6				
7				
8				

*Return the journal in the envelope provided at the end of the two month study period.*

*Thank you from the research team, Dara Bultman, Mary Jenkins, and Bonnie Svarstad*

APPENDIX C

METHODS MATERIALS: UPDATED RECRUITING MATERIALS

Dear Pharmacist and Coworkers:

The University research team appreciates your assistance in the ongoing Dane County project involving clients and their antidepressant medication use. I am writing to you on behalf of the research team to update you on the progress of the study and respond to your concerns related to participation.

To date 25 pharmacies in Dane County are involved in the enrollment process. Eligible study participants are being identified by local pharmacists and telephone interviews are being conducted by our research team. Study participants are enjoying the opportunity to share experiences and feelings about their medication use.

Our research goal is to learn ways in which we can improve patient care. In order to meet this goal we need to hear from clients about their antidepressant medication use. This means we need you to identify eligible clients and help us boost study participation.

We are very aware of the time constraints pharmacists experience every day. We have designed this project so that your participation is not overly time consuming. All you need to do is:

- (1) Ask individuals who are starting an antidepressant medication if a researcher can contact them;
- (2) Give them a study packet;
- (3) Call 262-3312 and leave a message including the name of your pharmacy, the name of the client and their phone number; and
- (4) Note the information in the pharmacy log provided. Remember to record information for those willing to participate as well as those not desiring to participate.

The researchers will take it from there.

Enclosed you will find answers to some popular questions asked by pharmacists and their coworkers. Please help us in our attempts to develop ways to improve patient care by identifying a potential study participant today. We greatly appreciate your effort and participation.

(over)

Sincerely,

Dara C. Bultman, R.Ph., M.S.  
Tel: 608-262-3312

Answers to questions about the project:

Q. If I review my antidepressant drug records for prescriptions filled over the last month and find an individual who started the antidepressant medication about 3 weeks ago, is the person eligible to participate in the study?

A. Yes, call the individual and ask if a University researcher can contact them about study participation. Then call the researcher at 262-3312 and leave a message including the individual's name and phone number and your pharmacy name.

Q. What antidepressants are you including in the study?

A. All medications classified as antidepressants:  
 amitriptyline, amoxapine (Asendin), bupropion (Wellbutrin), clomipramine (Anafranil), desipramine (Norpramin), doxepin (Sinequan, Adapin), fluoxetine (Prozac), fluvoxamine (Luvox), imipramine (Tofranil), isocarboxazid (Marplan), maprotiline (Ludiomil), nefazodone (Serzone), nortriptyline (Aventyl, Pamelor), paroxetine (Paxil), phenelzine (Nardil), protriptyline (Vivactil), sertraline (Zoloft), tranylcypromine (Parnate), trazodone (Desyrel), trimipramine (Surmontil), venlafaxine (Effexor).

Q. Who can participate?

A. Anyone starting antidepressant medication who is over the age of 18 and speaks and understands English well enough to complete a telephone interview.

Q. What do you mean by "starting" treatment?

A. Anyone who has started the antidepressant within the last month. This may include individuals who have:

- (1) Started the medication with professional samples;
- (2) Taken antidepressant medications in the past but have had a break in treatment for at least 3 months;
- (3) Switched from one type of antidepressant medication to another.

Q. How do you introduce the study to your clients without sounding awkward?

A. "The University School of Pharmacy is conducting a study. The study is important because it focuses on patient experience and opinions about their medication. You are eligible because of your prescription. Your name and other information will be kept confidential and your care will not be affected. May I give the researcher your name so that she can call you and tell you more about the study?"

## **ANTIDEPRESSANT USE STUDY**

### **NOTICE**

**The University of Wisconsin School of Pharmacy is conducting a study concerning patient experience with antidepressant medications. You are invited to participate if you have started taking antidepressant medications within the last month or so. Ask your pharmacist for more information or call (608) 262-3312 and leave a message including your name and phone number. You will receive \$20 for your time and effort. The study is confidential and completed by telephone interview.**

February, 1996

Dear Pharmacists and Coworkers:

Once again I am writing to you concerning the University of Wisconsin School of Pharmacy research project entitled "Client Experience with Antidepressant Medication".

On behalf of the research team I am pleased to inform you that research funding has been granted so we can now reimburse you for enrolling study participants and pay clients for participating. Pharmacies, pharmacists, or coworkers will receive \$10 per enrollee when at least 3 clients from the pharmacy are enrolled into the study. Your pharmacy has enrolled two study participants. We will pay you \$30 after you enroll 1 more client. We will pay study participants \$20 upon completion of their second interview. We are pleased that we can express our gratitude to you and the study participants in this way. We hope that the financial reimbursement to you and participants will help you during this enrollment period.

Enclosed you will find additional aides for enrolling study participants. We suggest giving the study announcement card to eligible clients along with their prescription. The card will convey the message to potential clients in a confidential manner. In addition, we have included color coding labels for you to place on antidepressant medication bottles or the shelf space near the medication bottles to remind you to give eligible clients the announcement card.

Thank you for your effort and participation.

Sincerely,

Dara C. Bultman, R.Ph., M.S.  
Ph.D. Candidate  
Tel:608-262-3312

**Dear Client:**

**The University of Wisconsin School of Pharmacy is conducting a study concerning patient experience with antidepressant medication. You are invited to participate if you are taking antidepressant medications for the first time or have recently restarted taking antidepressant medications.**

**To learn more about this study:**

- \*\* Ask your pharmacist for the study information packet OR**
- \*\* Call (608) 262-3312 and leave a message including your name and phone number.**

**We would appreciate your participation. You will receive \$20 for your time and effort. The study is confidential and completed by telephone interview.**

**Dara C. Bultman, Pharmacist and Researcher  
University of Wisconsin Madison, School of Pharmacy  
425 N. Charter St.  
Madison, WI 53706**

APPENDIX D

METHODS MATERIALS: INTERVIEW INSTRUMENTS

Interview I Instrument  
Client Experience with Antidepressant Medication:  
A Prospective Study of Treatment Continuation

Study Participant \_\_\_\_\_  
Telephone Number \_\_\_\_\_  
Prescription \_\_\_\_\_  
Interviewer \_\_\_\_\_  
Date/Time \_\_\_\_\_

Your pharmacist invited you to participate because of your prescription for \_\_\_\_\_.

I would like to begin with a few questions concerning what you were told about this medication.

1. How were you told to take \_\_\_\_\_?

(Probes:)

Are you to take it every day or does it depend on how you feel?

Are you to take it at a certain time of day?

How long does your doctor want you to take this prescription?

2. a. Were you told about any side effects related to taking \_\_\_\_\_?  
(If yes, what were you told?)

b. Were you given any instructions about what to do if you experienced a side effect?  
(If yes, get details)

3. Were you told how \_\_\_\_\_ works?  
(If yes) Please describe it to me.

4. Were you told how long it would take before you felt any better?  
(If yes) How long were you told it would be?
5. For what reason did your doctor prescribe \_\_\_\_\_?
6. Have you started taking the \_\_\_\_\_?  
(If yes) When did you start?  
(If no) Are you planing to start?
7. Were you given written instructions about the use of \_\_\_\_\_?  
  
(If no) Would you have liked written instructions? Why/why not?  
  
(If yes) Were you interested in having written instructions?  
Were they useful to you? Why/why not? Who gave them to you?
8. Are you scheduled to have another appointment with the doctor who prescribed \_\_\_\_\_? (If yes) When is that supposed to be?

9. Different views exist about the causes of depression and other conditions for which \_\_\_\_\_ is prescribed. How important is each of the following factors in causing your (condition mentioned in Q5)? There are 4 responses: not important at all, marginally important, moderately important and very important. How important would you say \_\_\_\_\_ is in causing your condition?

USE THE FOLLOWING ANSWER CODE:

Don't Know = 0  
 Not important at all = 1  
 Marginally important = 2  
 Moderately important = 3  
 Very important = 4

- |    |                          |           |
|----|--------------------------|-----------|
| a. | Seasonal causes          | 0 1 2 3 4 |
| b. | Economic situation       | 0 1 2 3 4 |
| c. | Biochemical reasons      | 0 1 2 3 4 |
| d. | Hereditary causes        | 0 1 2 3 4 |
| e. | Hormonal causes          | 0 1 2 3 4 |
| f. | Personal relationships   | 0 1 2 3 4 |
| g. | Physical condition       | 0 1 2 3 4 |
| h. | Work related issues      | 0 1 2 3 4 |
| I. | Other:No / Yes (specify) | 0 1 2 3 4 |

Now, as I read the following statements, tell me to what extent you agree with each. The responses range from Strongly Agree to Strongly Disagree. The answer code has 5 possible responses: Strongly Agree, Agree, Neither agree nor disagree, Disagree, or Strongly Disagree.

Use the following answer code:

Strongly Agree = 1

Agree = 2

Neither Agree/Disagree = 3

Disagree = 4

Strongly Disagree = 5

- |     |  |           |
|-----|--|-----------|
| 10. | Overcoming depression (or condition mentioned Q5) usually requires taking an antidepressant.   | 1 2 3 4 5 |
| 11. | Antidepressants are useful in treating depression (or condition mentioned in Q5).  | 1 2 3 4 5 |
| 12. | Taking this medication is a good option for me.  | 1 2 3 4 5 |
| 13. | I would prefer a different medication.   | 1 2 3 4 5 |
| 14. | When my doctor gave me this prescription, I had an alternative course of action in mind.   | 1 2 3 4 5 |
| 15. | I have worries or concerns about _____ that have not been dealt with by my health care providers.  | 1 2 3 4 5 |
| 16. | My condition is very serious.  | 1 2 3 4 5 |
| 17. | The severity of my condition warrants use of _____.  | 1 2 3 4 5 |
| 18. | Side effects of _____ are likely to be bothersome.   | 1 2 3 4 5 |
| 19. | Taking antidepressants on a daily basis can be harmful to your body.   | 1 2 3 4 5 |
| 20. | Right now, I intend to take _____ as my doctor prescribed.   | 1 2 3 4 5 |
| 21. | In regard to the use of _____, is there anything that worries you or causes you some concern? Yes / No<br>(If yes) What are your worries?<br>(Insert answer into Interview II, item 12a) |           |

Who prescribed \_\_\_\_\_ for you?

Is that who you talked with the most? (Determine key provider, i.e. doctor, psychiatrist, nurse practitioner, therapist, counselor, etc. Be sure you know who the client is referring to when responding.)

Now, think about your visit with \_\_\_\_\_ (provider identified) when the medicine was prescribed. During that visit to what extent would you say \_\_\_\_\_ (provider) acted in the following ways. This time the response set is:

Not at All = 0  
Marginally = 1  
Moderately = 2  
Very Much = 3

- |     |  |           |
|-----|--|-----------|
| 22. | _____ (provider ) was friendly during the visit.                                   | 0 1 2 3   |
| 23. | Asked if you had questions or concerns.  | 0 1 2 3   |
| 24. | Listened to you.   | 0 1 2 3   |
| 25. | Helped you with your concerns related to the use of _____.                         | 0 1 2 3   |
| 26. | Gave you clear instructions on how to take _____.                                  | 0 1 2 3   |
| 27. | Gave you a clear explanation about how _____ would affect you. /                   | 0 1 2 3   |
| 28. | Made decisions about your treatment without your input.                            | 0 1 2 3   |
| 29. | You and _____ planned your treatment together.                                     | 0 1 2 3   |
| 30. | Discussed alternative treatment options with you.                                  | 0 1 2 3   |
| 31. | Talked about things that you could do to help you feel better.                     | 0 1 2 3   |
| 32. | How would you evaluate your overall experience with this visit? Would you say..... | 1 2 3 4 5 |
- Very Satisfied = 1  
 Somewhat Satisfied = 2  
 Neither Satisfied nor Dissatisfied = 3  
 Somewhat Dissatisfied = 4  
 Very Dissatisfied = 5

Now think about your pharmacy visit when you filled the prescription for \_\_\_\_\_.  
 Did someone at the pharmacy talk to you about the use of \_\_\_\_\_? YES/NO  
 Would you say the individual was a pharmacist or intern/student or what?  
 RPh/Intern/Student/Other  
 Do you know the individual who filled your prescription by name? YES/NO  
 (If yes) What is the individual's name? \_\_\_\_\_  
 (If no) Have you seen this individual before or was this the first time?

Okay, now thinking about the pharmacy visit. During that visit to what extent would you say \_\_\_\_\_ (pharmacist identified) acted in the following ways. Use the following answer code:

Not at All = 0  
 Marginally = 1  
 Moderately = 2  
 Very Much = 3

- |     |  |           |
|-----|--|-----------|
| 33. | _____ was friendly during the visit.   | 0 1 2 3   |
| 34. | Asked if you had questions or concerns.  | 0 1 2 3   |
| 35. | Listened to you.   | 0 1 2 3   |
| 36. | Helped you with your concerns related to the use of _____.                                 | 0 1 2 3   |
| 37. | Gave you clear instructions on how to take _____.  | 0 1 2 3   |
| 38. | Gave you a clear explanation about how _____ would affect you.                             | 0 1 2 3   |
| 39. | Made decisions about your prescription without your input.                                 | 0 1 2 3   |
| 40. | Discussed alternative treatment options with you.  | 0 1 2 3   |
| 41. | Talked about things you could do to help you feel better.                                  | 0 1 2 3   |
| 42. | How would you evaluate your overall experience with this pharmacy visit? Would you say.... | 1 2 3 4 5 |
|     | Very Satisfied = 1   |           |
|     | Somewhat Satisfied = 2   |           |
|     | Neither Satisfied nor Dissatisfied = 3   |           |
|     | Somewhat Dissatisfied = 4  |           |
|     | Very Dissatisfied = 5  |           |

Additional Comments:

43. \_\_\_\_\_ is prescribed to treat symptoms from the following list. As I read the items indicate the amount of time you have experienced these symptoms during the two weeks just before you started taking \_\_\_\_\_. Use the following answer code:

None or little of the time = 1  
 Some of the time = 2  
 Good part of the time = 3  
 All or most of the time = 4

AHCPR DEPRESSION SYMPTOMS (In the 2 weeks before starting medication, how much of the time have you experienced:)	EXPER- IENCE	RANK ORDER GOALS (1-3)
A lack of interest in things you used to do	1 2 3 4	
A lack of pleasure in being with friends/ family	1 2 3 4	
Feeling sad, blue or down in the dumps	1 2 3 4	
Feeling slowed down or restless	1 2 3 4	
Appetite problems	1 2 3 4	
Thoughts of death or suicide	1 2 3 4	
Problems concentrating, thinking, remembering, or making decisions	1 2 3 4	
Trouble sleeping or sleeping too much	1 2 3 4	
Lack of energy or feeling tired all of the time	1 2 3 4	
Feeling hopeless	1 2 3 4	
Feeling anxious	1 2 3 4	
Feeling irritable	1 2 3 4	
Lack of interest in sexual activity	1 2 3 4	
What other symptoms prompted you to see the doctor?		
Other (specify?)	1 2 3 4	

44. People have different goals when taking medication. In what 3 areas would you most like improvement from \_\_\_\_\_?
- 1.
  - 2.
  - 3.

We would like to learn something about your personal background.

45. Which of the following best describes your racial background?  
 African-American = 1  
 Asian = 2  
 Caucasian = 3  
 Hispanic/ Latin = 4  
 Native American = 5  
 Other = 6
46. Are you male or female?  
 MALE = 1  
 FEMALE = 2
47. What is your birthdate?
48. Which best describes your level of formal education?  
 Less than high school = 1  
 High school = 2  
 Technical school = 3  
 College = 4  
 Bachelor's degree = 5  
 Beyond Bachelors = 6
49. Tell me about your activities during a typical week. (Get info about daily activity...paid or volunteer work, job, schoolwork, housework, social organizations, exercise, etc.)
50. What is your approximate annual household income before taxes? (include income from all sources such as salaries and wages, Social Security, retirement income, investments, and other sources).
- 50a. How many people make up your household?
51. Do you have some kind of medical insurance?  
 0 = NO  
 1 = YES--->
- 51a. Does your medical insurance cover your visits to the doctor that prescribed \_\_\_\_\_? 0=NO 1=YES
- 51b. Does your medical insurance cover at least some part of the cost of \_\_\_\_\_? 0=NO 1=YES
- 51c. What is (are) your medical insurance plan(s)?

52. Do you obtain all your prescriptions from the pharmacy where you received \_\_\_\_\_? 0 = NO 1 = YES
- 52a. If no, approximately what % of your prescription medications do you obtain from this pharmacy? \_\_\_\_\_
- 52b. List all pharmacies where you have filled prescriptions in the last year.
53. Have you taken antidepressant type medication in the past? 0 = NO 1 = YES
54. Other than taking this prescription, what do you do to improve how you feel?
55. What additional things have been mentioned to you or are you thinking about doing to improve how you feel?
56. Describe briefly your routine or system for taking \_\_\_\_\_?
57. How would you rate your physical health? Would you say excellent, good, fair or poor?  
1 = EXCELLENT  
2 = GOOD  
3 = FAIR  
4 = POOR
58. How would you rate your emotional health? Would you say excellent, good, fair or poor?  
1 = EXCELLENT  
2 = GOOD  
3 = FAIR  
4 = POOR

Thank you for completing this interview. Your time and effort are appreciated.

When would you like me to call for the follow-up interview? (Approximately 2 months from today...schedule DAY \_\_\_\_\_ and TIME \_\_\_\_\_ AM/PM).

Interview II Instrument  
 Client Experience with Antidepressant Medication:  
 A Prospective Study of Treatment Continuation

Study Participant \_\_\_\_\_ Tel. No. \_\_\_\_\_  
 Date/Time \_\_\_\_\_ Prescription \_\_\_\_\_

From Interview I insert info for Questions:

- (13) initial concern(s)
- (pg 7) prescriber
- (pg 8) pharmacist
- (43) 3 areas desire change

Hello \_\_\_\_\_!

1. Are you currently taking \_\_\_\_\_?

YES = 1

NO = 0 (If NO When did you stop? Did you start another? What and when? Are you currently taking this? If taking anything GO TO Q2, If taking nothing go to Q9).

(If YES) Think back over the past week as you answer the following questions.

2. How many days did you take \_\_\_\_\_ over the past week? \_\_\_\_\_

3. How many times per day did you take it? \_\_\_\_\_

4. How many pills did you take each time? \_\_\_\_\_

5. During the past week how many times did you forget a dose? \_\_\_\_\_

6. How many times did you take an extra pill? \_\_\_\_\_

7. How many times did you not take a pill on purpose? \_\_\_\_\_

8. Now, think back over the whole 2 month period or so since you started taking \_\_\_\_\_. Have you been taking \_\_\_\_\_ as you just described over that whole period? Yes = 1 No = 0  
(Clarify daily dose and number of times take it...20mg once daily or 50 mg twice a day, etc)

9. During the past 2 months how many times would you say you forgot a dose? \_\_\_\_\_

10. How many times would you say you added an extra pill? \_\_\_\_\_

11. How many times did you not take a pill on purpose? \_\_\_\_\_

12. Now, it would be helpful if you could recall for me your visits with your doctor, pharmacist, any health care providers with whom you discussed the medicine. Since we talked who have you seen or phoned about the prescription? (Fill in columns below)

Date    Visit with WHO?                      Any RX changes?

Now, we would like to go over problems or concerns you've experienced while taking \_\_\_\_\_.

13. The last time we talked you mentioned a concern with \_\_\_\_\_  
\_\_\_\_\_

a. On a scale of zero to 5 where zero means "a little problem" and 5 means "a very big problem" how much of a problem is this? 0 1 2 3 4 5

b. Did you discuss this with any of your health care providers?

Prescriber? Yes = 1 No = 0

Pharmacist? Yes = 1 No = 0

Other (Specify) \_\_\_\_\_ ? Yes = 1 No = 0

c. (If Yes) Can you tell me about that discussion?

d. What is the current situation concerning this? (Probe to determine outcome and possible problem resolution).

14. Have you had any problems remembering to take \_\_\_\_\_?

Yes = 1 (Go To Q 13a)

No = 0 (Go to Q14)

a. On a scale of zero to 5 where zero means "a little problem" and 5 means "a very big problem" how much of a problem is this? 0 1 2 3 4 5

b. Did you discuss this with any of your health care providers?

Prescriber? Yes = 1 No = 0

Pharmacist? Yes = 1 No = 0

Other (Specify)? Yes = 1 No = 0

c. (If Yes) Can you tell me about that discussion?

d. What is the current situation concerning this? (Probe to determine outcome and possible problem resolution).

15. Have you had any problems getting refills on time?

Yes = 1 (Go to Q 14a)

No = 0 (Go to Q 15)

a. On a scale of zero to 5 where zero means "a little problem" and 5 means "a very big problem" how much of a problem is this? 0 1 2 3 4 5

b. Did you discuss this with any of your health care providers?

Prescriber? Yes = 1 No = 0

Pharmacist? Yes = 1 No = 0

Other (Specify)? Yes = 1 No = 0

c. (If Yes) Can you tell me about that discussion?

d. What is the current situation concerning this? (Probe to determine outcome and possible problem resolution).

16. Have you had any problems paying for \_\_\_\_\_?

Yes = 1 (Go to Q15a)

No = 0 (Go to Q 16)

a. On a scale of zero to 5 where zero means "a little problem" and 5 means "a very big problem" how much of a problem is this? 0 1 2 3 4 5

b. Did you discuss this with any of your health care providers?

Prescriber? Yes = 1 No = 0

Pharmacist? Yes = 1 No = 0

Other (Specify)? Yes = 1 No = 0

c. (If Yes) Can you tell me about that discussion?

d. What is the current situation concerning this? (Probe to determine outcome and possible problem resolution).

17. Now, as I read a list of common side effects, tell me if you have experienced any of these because of \_\_\_\_\_?

anxiousness	dry mouth	nausea	vomiting	constipation	diarrhea
drowsiness	headaches	vivid dreams/ or nightmares	sexual dysfunction	urinary urgency	trouble sleeping
nervousness	fatigue/ tiredness	dizziness/ lightheaded	sweating	loss of appetite	Other (specify)

a. On a scale of zero to 5 where zero means "a little problem" and 5 means "a very big problem" how much of a problem is this? (indicate number next to side effect)

b. Did you discuss this with any of your health care providers?

Prescriber? Yes = 1 No = 0

Pharmacist? Yes = 1 No = 0

Other (Specify)? Yes = 1 No = 0

c. (If Yes) Can you tell me about that discussion?

d. What is the current situation concerning this? (Probe to determine outcome and possible problem resolution).

18. Can you think of any problems you had with the medication that just went away or were solved a while ago? (get description of problem)

a. On a scale of zero to 5 where zero means "a little problem" and 5 means "a very big problem" how much of a problem is this? 0 1 2 3 4 5

b. Did you discuss this with any of your health care providers?

Prescriber? Yes = 1 No = 0

Pharmacist? Yes = 1 No = 0

Other (Specify)? Yes = 1 No = 0

c. (If Yes) Can you tell me about that discussion?

d. What is the current situation concerning this? (Probe to determine outcome and possible problem resolution).

19. Other than what we've already talked about does \_\_\_\_\_ bother you in any way?

a. On a scale of zero to 5 where zero means "a little problem" and 5 means "a very big problem" how much of a problem is this? 0 1 2 3 4 5

b. Did you discuss this with any of your health care providers?

Prescriber? Yes = 1 No = 0

Pharmacist? Yes = 1 No = 0

Other (Specify)? Yes = 1 No = 0

c. (If Yes) Can you tell me about that discussion?

d. What is the current situation concerning this? (Probe to determine outcome and possible problem resolution).

20. Have you had any problems with your doctor? Yes = 1 No = 0  
or counselor? Yes = 1 No = 0  
or pharmacist? Yes = 1 No = 0  
or the clinic? Yes = 1 No = 0

a. On a scale of zero to 5 where zero means "a little problem" and 5 means "a very big problem" how much of a problem is this? 0 1 2 3 4 5

b. Did you discuss this with any of your health care providers?

Prescriber? Yes = 1 No = 0

Pharmacist? Yes = 1 No = 0

Other (Specify)? Yes = 1 No = 0

c. (If Yes) Can you tell me about that discussion?

d. What is the current situation concerning this? (Probe to determine outcome and possible problem resolution).

21. Would you say since taking \_\_\_\_\_ you feel better....

- A lot of the time = 1
- Some of the time = 2
- A little of the time = 3
- None of the time = 4

22. How much does \_\_\_\_\_ bother you?

- A Lot = 1
- Some = 2
- A Little = 3
- Not At All = 4

23. How necessary is \_\_\_\_\_ to your good health?

- Very Necessary = 1
- Somewhat Necessary = 2
- Not at all Necessary = 3
- Don't Know = 4

24. How would you evaluate your overall experience with \_\_\_\_\_?

- Very Satisfied = 1
- Somewhat Satisfied = 2
- Neither Satisfied nor Dissatisfied = 3
- Somewhat Dissatisfied = 4
- Very Dissatisfied = 5

Now, we would like to hear more about your experiences with your health care providers. Last time we talked you were seeing \_\_\_\_\_. (From Q12 clarify current HCP).  
 Okay, when answering the following questions think about \_\_\_\_\_ and the interactions you've had with (him/her) over the past 2 months concerning the use of \_\_\_\_\_. Tell me how much you agree with these statements. The answer code includes:

**Strongly Agree = 1**  
**Agree = 2**  
**Neither Agree nor Disagree = 3**  
**Disagree = 4**  
**Strongly Disagree = 5**

- |     |   |           |
|-----|---|-----------|
| 25. | (HCP/prescriber) _____ encourages (ed) you to express your concerns or problems with taking _____. Would you say Strongly Agree, Agree, Neither agree nor disagree, Disagree, or Strongly Disagree? | 1 2 3 4 5 |
| 26. | He/she asks (ed) you if you have (had) any questions or concerns about _____.   | 1 2 3 4 5 |
| 26. | _____ listens (ed) to your concerns about _____.  | 1 2 3 4 5 |
| 27. | _____ helps (helped) you solve problems related to your use of _____.   | 1 2 3 4 5 |

Now answer YES or NO and if you have some additional comments please describe those.  
 YES = 1 NO = 0

- |     |   |     |
|-----|---|-----|
| 28. | Has _____ asked how _____ is (was) working for you?               | 1 0 |
| 29. | Has _____ asked how you are (were) taking _____?                  | 1 0 |
| 30. | Has _____ asked if you experienced any side effects?              | 1 0 |
| 31. | Has _____ asked if you are having (had) any other problems?       | 1 0 |
| 32. | Has _____ talked with you about scheduling your next appointment? | 1 0 |

33. Now, I'd like to go through similar questions but this time I need you to think about the pharmacist(s) you've interacted with since starting \_\_\_\_\_. Last time we talked you had seen a pharmacist at \_\_\_\_\_. Have you talked with that individual again? YES/NO  
 (If YES) How many times have you been in contact with \_\_\_\_\_?  
 (If NO) Have you talked with another pharmacist since starting \_\_\_\_\_?  
 Okay, thinking about your pharmacy interactions concerning the use of \_\_\_\_\_ to what extent would you agree with the following statements:

**USE THE FOLLOWING ANSWER CODE:**

**Strongly Agree = 1**

**Agree = 2**

**Neither Agree nor Disagree = 3**

**Disagree = 4**

**Strongly Disagree = 5**

34. (Pharmacist) \_\_\_\_\_ encourages (ed) you to express your concerns or problems with taking \_\_\_\_\_. Would you say SA, A, N, D, SD? 1 2 3 4 5
35. \_\_\_\_\_ asks (ed) you if you have (had) any questions or concerns about \_\_\_\_\_. 1 2 3 4 5
36. \_\_\_\_\_ listens (ed) to your concerns about \_\_\_\_\_. / 1 2 3 4 5
37. \_\_\_\_\_ helps (helped) you solve problems related to your use of \_\_\_\_\_. 1 2 3 4 5
- Now answer YES or NO and if you have some additional comments please describe those.  
 YES =1 NO =0
38. Has \_\_\_\_\_ asked how \_\_\_\_\_ is (was) working for you? 1 0
39. Has \_\_\_\_\_ asked how you are (were) taking \_\_\_\_\_? 1 0
40. Has \_\_\_\_\_ asked if you experienced any side effects? 1 0
41. Has \_\_\_\_\_ asked if you are having (had) any other problems? 1 0
42. Has \_\_\_\_\_ talked with you about the number of refills on your prescription? 1 0

43a. Now I'm going to read the list of symptoms medications like \_\_\_\_\_ treat. As I read each item tell me how often you have experienced each symptom during the last two weeks. Please respond using the following answer key:

- None or little of the time = 1
- Some of the time = 2
- Good part of the time = 3
- All or most of the time = 4

AHCPR DEPRESSION SYMPTOMS	Experi- ence	3 Areas want change	Change in areas	Due to ____?	Desire now?
Lack of interest in things you used to do	1 2 3 4				
Lack of pleasure in being with friends/ family	1 2 3 4				
Feeling sad, blue or down in the dumps	1 2 3 4				
Feeling slowed down or restless	1 2 3 4				
Appetite problems	1 2 3 4				
Thoughts of death or suicide	1 2 3 4				
Problems concentrating, thinking, remembering, or making decisions	1 2 3 4				
Trouble sleeping or sleeping too much	1 2 3 4				
Lack of energy or feeling tired all of the time	1 2 3 4				
Feeling hopeless	1 2 3 4				
Feeling anxious	1 2 3 4				
Feeling irritable	1 2 3 4				
Lack of interest in sexual activity	1 2 3 4				
Other (Specify)	1 2 3 4				

43b. Have you noticed any change in the following three areas:

- \_\_\_\_\_ Same = 0 Improved = 1 Worse = 2
- \_\_\_\_\_ Same = 0 Improved = 1 Worse = 2
- \_\_\_\_\_ Same = 0 Improved = 1 Worse = 2

- 43c. Would you say the change is due to the use of \_\_\_\_\_?
- 43d. Would you say the changes are due to other things you do to feel better?
- 43e. What are you hoping for now concerning the use of \_\_\_\_\_?
44. Do you plan to continue taking \_\_\_\_\_?  
1=Yes  
0=No
45. How would you rate your physical health? Would you say excellent, good, fair, or poor?  
1 = Excellent  
2 = Good  
3 = Fair  
4 = Poor
46. How would you rate your emotional health? Would you say excellent, good, fair or poor?  
1 = Excellent  
2 = Good  
3 = Fair  
4 = Poor

Thank you for completing this interview.  
Your time and effort are greatly appreciated.

APPENDIX E

METHODS MATERIALS: LIST OF PRESCRIPTION ANTIDEPRESSANTS

## ANTIDEPRESSANT DRUG AGENTS

## AMINOKETONE

Bupropion                      Wellbutrin (Burroughs Wellcome)

## MONOAMINE OXIDASE INHIBITORS

Isocarboxazid              Marplan (Roche)  
 Phenelzine                  Nardil (Parke-Davis)  
 Tranylcypromine          Parnate (SKF)

## PHENETHYLAMINE

Venlafaxine                Effexor (Wyeth-Ayerst)

## PHENYLPIPERAZINE

Nefazodone                Serzone (Bristol-Myers Squibb)

## SELECTIVE SEROTONIN REUPTAKE INHIBITORS

Fluoxetine                 Prozac (Dista)  
 Fluvoxamine              Luvox (Sovay/Upjohn)  
 Paroxetine                Paxil (SK-Beecham)  
 Sertraline                 Zoloft (Roerig)

## TETRACYCLIC COMPOUNDS

Maprotiline                Ludiomil (Ciba)  
 Trazodone                 Desyrel (Mead Johnson)

## TRICYCLIC COMPOUNDS - Tertiary Amines

Amitriptyline              Elavil(Stuart),Endep(Roche)  
 Clomipramine              Anafranil (Ciba)  
 Doxepin                    Adapin (Fisons)  
                                   Sinequan (Roerig)  
 Imipramine                Janimine (Abbott)  
                                   Tofranil (Geigy)  
 Trimipramine              Surmontil (Wyeth-Ayerst)

## TRICYCLIC COMPOUNDS - Secondary Amines

Amoxapine                 Asendin (Lederle)  
 Desipramine               Norpramin (Merrell Dow)  
                                   Pertofrane (Rorer)  
 Nortriptyline              Aventyl (Lilly)  
                                   Pamelor (Sandoz)  
 Protriptyline              Vivactil (MSD)

APPENDIX F /

RESULTS: SIGNIFICANT DIFFERENCES BETWEEN CONSUMERS FROM  
LARGEST ENROLLING PHARMACY AND REMAINING PHARMACIES

Significant Differences between 23 consumers enrolled from centrally located pharmacy and remaining 77 study participants.

Frequencies and Means for consumer age, education, house hold income, type of antidepressant prescribed and follow-up depression symptoms from all pharmacies except pharmacy 107

Approximate annual household income

INCOMEHH	Frequency	Percent	Cumulative	
			Frequency	Percent
7000	1	1.3	1	1.3
7800	1	1.3	2	2.6
10000	1	1.3	3	3.9
12000	1	1.3	4	5.2
14000	1	1.3	5	6.5
14400	1	1.3	6	7.8
15000	2	2.6	8	10.4
18000	2	2.6	10	13.0
19000	1	1.3	11	14.3
20000	6	7.8	17	22.1
21000	1	1.3	18	23.4
25000	1	1.3	19	24.7
26000	1	1.3	20	26.0
30000	2	2.6	22	28.6
32000	2	2.6	24	31.2
34000	2	2.6	26	33.8
35000	1	1.3	27	35.1
40000	7	9.1	34	44.2
42000	1	1.3	35	45.5
43000	1	1.3	36	46.8
45000	6	7.8	42	54.5
47000	1	1.3	43	55.8
50000	8	10.4	51	66.2
51000	1	1.3	52	67.5
53000	1	1.3	53	68.8
55000	1	1.3	54	70.1
56000	1	1.3	55	71.4
60000	3	3.9	58	75.3
65000	2	2.6	60	77.9
70000	4	5.2	64	83.1
75000	3	3.9	67	87.0
80000	2	2.6	69	89.6
98000	1	1.3	70	90.9
100000	4	5.2	74	96.1
140000	2	2.6	76	98.7
150000	1	1.3	77	100.0

## Follow-up Depression Symptoms

<u>DEPRSXS2</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Frequency</u>	<u>Cumulative Percent</u>
12	8	10.4	8	10.4
13	3	3.9	11	14.3
14	4	5.2	15	19.5
15	8	10.4	23	29.9
16	8	10.4	31	40.3
17	2	2.6	33	42.9
18	4	5.2	37	48.1
19	6	7.8	43	55.8
20	2	2.6	45	58.4
21	7	9.1	52	67.5
22	2	2.6	54	70.1
23	2	2.6	56	72.7
24	5	6.5	61	79.2
25	1	1.3	62	80.5
26	1	1.3	63	81.8
28	4	5.2	67	87.0
30	2	2.6	69	89.6
32	2	2.6	71	92.2
34	2	2.6	73	94.8
36	1	1.3	74	96.1
38	1	1.3	75	97.4
39	1	1.3	76	98.7
42	1	1.3	77	100.0

## college education or not

<u>EDUCDUM</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Frequency</u>	<u>Cumulative Percent</u>
No	27	35.1	27	35.1
Yes	50	64.9	77	100.0

## Antidepressant is an SSRI or NOT

<u>AD2DUM</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Frequency</u>	<u>Cumulative Percent</u>
Not SSRI	13	16.9	13	16.9
SSRI	64	83.1	77	100.0

Variable	Label	N	Mean	Std Dev	Min	Max
AGE	client age (year)	77	38.34	12.97	18.0	84.0
INCOMEHH	Approximate annual household income	77	48950.65	0307.72	7000.0	150,000.0
DEPRSXS2	total depression symptoms follow-up	77	20.34	7.16	12.0	42.0
EDUCDUM	college education or not	77	0.65	0.48	0	1.0
AD2DUM	SSRI or NOT SSRI antidepressant	77	0.83	0.38	0	1.0

Frequencies and Means for:  
 consumer age, education, household income, type of antidepressant  
 prescribed and follow-up depression symptoms from Pharmacy 107

Annual household income

INCOMEHH	Frequency	Percent	Cumulative	
			Frequency	Percent
6500	1	4.3	1	4.3
7000	3	13.0	4	17.4
7100	1	4.3	5	21.7
10000	3	13.0	8	34.8
14000	1	4.3	9	39.1
15600	1	4.3	10	43.5
17000	1	4.3	11	47.8
20000	2	8.7	13	56.5
25000	2	8.7	15	65.2
26000	1	4.3	16	69.6
31000	1	4.3	17	73.9
40000	1	4.3	18	78.3
42000	1	4.3	19	82.6
50000	1	4.3	20	87.0
55000	1	4.3	21	91.3
80000	1	4.3	22	95.7
90000	1	4.3	23	100.0

Follow-up Depression Symptoms

DEPRSXS2	Frequency	Percent	Cumulative	
			Frequency	Percent
12	1	4.3	1	4.3
14	2	8.7	3	13.0
15	1	4.3	4	17.4
17	3	13.0	7	30.4
18	2	8.7	9	39.1
19	1	4.3	10	43.5
20	1	4.3	11	47.8
22	2	8.7	13	56.5
26	1	4.3	14	60.9
27	1	4.3	15	65.2
29	1	4.3	16	69.6
31	2	8.7	18	78.3
34	1	4.3	19	82.6
36	1	4.3	20	87.0
38	1	4.3	21	91.3
41	1	4.3	22	95.7
43	1	4.3	23	100.0

College education or not

EDUCDUM	Frequency	Percent	Cumulative	
			Frequency	Percent
No	1	4.3	1	4.3
Yes	22	95.7	23	100.0

Antidepressant prescribed is SSRI or NOT

AD2DUM	Frequency	Percent	Cumulative	
			Frequency	Percent
Not SSRI	10	43.5	10	43.5
SSRI	13	56.5	23	100.0

Variable	Label	N	Mean	Std Dev	Min	Max
AGE	client age (year)	23	30.70	10.9	18.0	58.0
INCOMEHH	Approx annual household income	23	26747.83	23246.46	6500.0	90,000.0
DEPRSXS2	total depression symptoms fup	23	24.39	9.33	12.0	43.0
EDUCDUM	college education or not	23	0.96	0.21	0	1.0
AD2DUM	AD SSRI or NOT SSRI	23	0.57	0.51	0	1.0

Analysis of Variance Procedure  
Class Level Information

Class	Levels	Values
INCOMEHH	42	6500 7000 7100 7800 10000 12000 14000 14400 15000 15600 17000 18000 19000 20000 21000 25000 26000 30000 31000 32000 34000 35000 40000 42000 43000 45000 47000 50000 51000 53000 55000 56000 60000 65000 70000 75000 80000 90000 98000 100000 140000 150000

Number of observations in data set = 100

Analysis of Variance Procedure

Dependent Variable: GROUP 107 vs other pharmacies

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	41	9.61277778	0.23445799	1.68	0.0343
Error	58	8.09722222	0.13960728		
Corrected Total	99	17.71000000			

R-Square	C.V.	Root MSE	GROUP Mean
0.542788	21.10964	0.37364058	1.77000000

Source	DF	Anova SS	Mean Square	F Value	Pr > F
INCOMEHH	41	9.61277778	0.23445799	1.68	0.0343

Analysis of Variance Procedure  
Class Level Information

Class	Levels	Values
DEPRSXS2	28	13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 34 36 38 39 41 42 43 None/little time

Number of observations in data set = 100

Analysis of Variance Procedure

Dependent Variable: GROUP 107 vs other pharmacies

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	27	7.37507937	0.27315109	1.90	0.0162
Error	72	10.33492063	0.14354056		
Corrected Total	99	17.71000000			
	R-Square	C.V.	Root MSE	GROUP Mean	
	0.416436	21.40494	0.37886748	1.77000000	

Source	DF	Anova SS	Mean Square	F Value	Pr > F
DEPRSXS2	27	7.37507937	0.27315109	1.90	0.0162

## TTEST PROCEDURE

Variable: EDUCDUM college educ/not

GROUP	N	Mean	Std Dev	Std Error	Minimum	Maximum
pharmacy 107	23	0.96	0.21	0.043	0	1.0
all others	77	0.65	0.48	0.055	0	1.0

Variances	T	DF	Prob> T
Unequal	4.3943	85.1	0.0001
Equal	2.9761	98.0	0.0037

For H0: Variances are equal,  $F' = 5.31$  DF = (76,22) Prob>F' = 0.0000

## TTEST PROCEDURE

Variable: AD2DUM AD SSRI or NOT

GROUP	N	Mean	Std Dev	Std Error	Minimum	Maximum
pharmacy 107	23	0.57	0.51	0.106	0	1.0
all others	77	0.83	0.38	0.042	0	1.0

Variances	T	DF	Prob> T
Unequal	-2.3311	29.6	0.0267
Equal	-2.7311	98.0	0.0075

For H0: Variances are equal,  $F' = 1.81$  DF = (22,76) Prob>F' = 0.0617

APPENDIX G /

RESULTS: FREQUENCY DISTRIBUTIONS OF DEPRESSION SYMPTOMS  
AND TREATMENT PROCESS VARIABLES

## Frequency Distributions

## Initial Depression Symptoms

DEPRSXS1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
17	2	2.0	2	2.0
18	1	1.0	3	3.0
20	1	1.0	4	4.0
21	1	1.0	5	5.0
22	1	1.0	6	6.0
23	3	3.0	9	9.0
24	3	3.0	12	12.0
25	3	3.0	15	15.0
26	2	2.0	17	17.0
27	3	3.0	20	20.0
28	2	2.0	22	22.0
29	2	2.0	24	24.0
30	6	6.0	30	30.0
31	2	2.0	32	32.0
32	2	2.0	34	34.0
33	6	6.0	40	40.0
34	2	2.0	42	42.0
35	6	6.0	48	48.0
36	5	5.0	53	53.0
37	4	4.0	57	57.0
38	4	4.0	61	61.0
39	7	7.0	68	68.0
40	5	5.0	73	73.0
41	5	5.0	78	78.0
42	8	8.0	86	86.0
43	8	8.0	94	94.0
44	2	2.0	96	96.0
46	1	1.0	97	97.0
47	2	2.0	99	99.0
48	1	1.0	100	100.0

## Prescriber Initial Communication Style

PSTYLE1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
3	1	1.0	1	1.0
4	1	1.0	2	2.0
8	3	3.0	5	5.0
9	3	3.0	8	8.0
11	3	3.0	11	11.0
12	2	2.0	13	13.0
13	6	6.0	19	19.0
14	14	14.0	33	33.0
15	10	10.0	43	43.0
16	14	14.0	57	57.0
17	18	18.0	75	75.0
18	25	25.0	100	100.0

## Pharmacist Initial Communication Style

<u>RSTYLE1</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Frequency</u>	<u>Cumulative Percent</u>
2	1	1.0	1	1.0
5	3	3.1	4	4.1
6	1	1.0	5	5.2
7	3	3.1	8	8.2
8	4	4.1	12	12.4
9	6	6.2	18	18.6
11	7	7.2	25	25.8
12	9	9.3	34	35.1
13	3	3.1	37	38.1
14	14	14.4	51	52.6
15	13	13.4	64	66.0
16	9	9.3	73	75.3
17	9	9.3	82	84.5
18	15	15.5	97	100.0

Frequency Missing = 3

## Knowledge of medication regimen, effects and management

<u>KNOINDEX</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Frequency</u>	<u>Cumulative Percent</u>
0	2	2.0	2	2.0
1	4	4.0	6	6.0
2	4	4.0	10	10.0
3	7	7.0	17	17.0
4	5	5.0	22	22.0
5	8	8.0	30	30.0
6	18	18.0	48	48.0
7	19	19.0	67	67.0
8	11	11.0	78	78.0
9	7	7.0	85	85.0
10	6	6.0	91	91.0
11	5	5.0	96	96.0
12	4	4.0	100	100.0

## Anticipated value of antidepressants

<u>PRODRUG</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Frequency</u>	<u>Cumulative Percent</u>
13	1	1.0	1	1.0
14	2	2.0	3	3.0
16	1	1.0	4	4.0
17	5	5.0	9	9.0
18	12	12.0	21	21.0
19	6	6.0	27	27.0
20	6	6.0	33	33.0
21	16	16.0	49	49.0
22	8	8.0	57	57.0
23	8	8.0	65	65.0
24	12	12.0	77	77.0
25	11	11.0	88	88.0
26	4	4.0	92	92.0
27	4	4.0	96	96.0
28	3	3.0	99	99.0
29	1	1.0	100	100.0

## Prescriber Follow-up Communication Style

PSTYLE2			Cumulative	
	Frequency	Percent	Frequency	Percent
10	1	1.2	1	1.2
11	1	1.2	2	2.4
12	1	1.2	3	3.6
13	1	1.2	4	4.8
14	1	1.2	5	6.0
15	2	2.4	7	8.3
16	2	2.4	9	10.7
17	6	7.1	15	17.9
18	1	1.2	16	19.0
19	9	10.7	25	29.8
20	6	7.1	31	36.9
21	7	8.3	38	45.2
22	7	8.3	45	53.6
23	13	15.5	58	69.0
24	26	31.0	84	100.0

Frequency Missing = 16

## Pharmacist Follow-up Communication Style

RSTYLE2			Cumulative	
	Frequency	Percent	Frequency	Percent
4	1	1.2	1	1.2
8	2	2.4	3	3.7
9	2	2.4	5	6.1
10	2	2.4	7	8.5
11	2	2.4	9	11.0
12	3	3.7	12	14.6
13	3	3.7	15	18.3
14	7	8.5	22	26.8
15	12	14.6	34	41.5
16	7	8.5	41	50.0
17	5	6.1	46	56.1
18	6	7.3	52	63.4
19	6	7.3	58	70.7
20	9	11.0	67	81.7
21	6	7.3	73	89.0
22	2	2.4	75	91.5
23	2	2.4	77	93.9
24	5	6.1	82	100.0

Frequency Missing = 18

## Evaluation of antidepressant use

MEDEVAL			Cumulative	
	Frequency	Percent	Frequency	Percent
3	3	3.0	3	3.0
4	1	1.0	4	4.0
5	1	1.0	5	5.0
6	6	6.0	11	11.0
7	4	4.0	15	15.0
8	3	3.0	18	18.0
9	12	12.0	30	30.0
10	7	7.0	37	37.0
11	19	19.0	56	56.0
12	20	20.0	76	76.0
13	24	24.0	100	100.0

## Prescriber style total = Pstyle1 and Follow-up

<u>PSTVTOT</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Frequency</u>	<u>Cumulative Percent</u>
3	1	1.0	1	1.0
5	1	1.0	2	2.0
8	1	1.0	3	3.0
9	2	2.0	5	5.0
11	2	2.0	7	7.0
12	1	1.0	8	8.0
13	3	3.0	11	11.0
14	2	2.0	13	13.0
15	3	3.0	16	16.0
16	5	5.0	21	21.0
17	11	11.0	32	32.0
18	13	13.0	45	45.0
19	10	10.0	55	55.0
20	17	17.0	72	72.0
21	11	11.0	83	83.0
22	17	17.0	100	100.0

## Pharmacist style total = Rstyle1 and Followup

<u>RSTVTOT</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Frequency</u>	<u>Cumulative Percent</u>
3	1	1.0	1	1.0
6	2	2.1	3	3.1
7	2	2.1	5	5.2
8	2	2.1	7	7.2
9	5	5.2	12	12.4
10	4	4.1	16	16.5
11	3	3.1	19	19.6
12	9	9.3	28	28.9
13	5	5.2	33	34.0
14	7	7.2	40	41.2
15	5	5.2	45	46.4
16	12	12.4	57	58.8
17	14	14.4	71	73.2
18	9	9.3	80	82.5
19	6	6.2	86	88.7
20	9	9.3	95	97.9
21	2	2.1	97	100.0

Frequency Missing = 3

## Medication beliefs total = prodrug and medeval

MEDTOT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
17	2	2.0	2	2.0
20	1	1.0	3	3.0
21	1	1.0	4	4.0
22	2	2.0	6	6.0
24	2	2.0	8	8.0
25	2	2.0	10	10.0
26	2	2.0	12	12.0
27	9	9.0	21	21.0
28	2	2.0	23	23.0
29	6	6.0	29	29.0
30	5	5.0	34	34.0
31	5	5.0	39	39.0
32	6	6.0	45	45.0
33	9	9.0	54	54.0
34	9	9.0	63	63.0
35	8	8.0	71	71.0
36	7	7.0	78	78.0
37	6	6.0	84	84.0
38	5	5.0	89	89.0
39	7	7.0	96	96.0
40	3	3.0	99	99.0
42	1	1.0	100	100.0

## Depression Symptoms at Follow-up

DEPRSXS2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
12	9	9.0	9	9.0
13	3	3.0	12	12.0
14	6	6.0	18	18.0
15	9	9.0	27	27.0
16	8	8.0	35	35.0
17	5	5.0	40	40.0
18	6	6.0	46	46.0
19	7	7.0	53	53.0
20	3	3.0	56	56.0
21	7	7.0	63	63.0
22	4	4.0	67	67.0
23	2	2.0	69	69.0
24	5	5.0	74	74.0
25	1	1.0	75	75.0
26	2	2.0	77	77.0
27	1	1.0	78	78.0
28	4	4.0	82	82.0
29	1	1.0	83	83.0
30	2	2.0	85	85.0
31	2	2.0	87	87.0
32	2	2.0	89	89.0
34	3	3.0	92	92.0
36	2	2.0	94	94.0
38	2	2.0	96	96.0
39	1	1.0	97	97.0
41	1	1.0	98	98.0
42	1	1.0	99	99.0
43	1	1.0	100	100.0

## BIBLIOGRAPHY

Agosti, V., Stewart, J.W., Quitkin, F.M., Rabkin, J.G., McGrath P.J., Markowitz, J. (1988). Factors associated with premature medication discontinuation among responders to an MAOI or a tricyclic antidepressant. *Journal of Clinical Psychiatry*, 49, 196-198.

American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Revised. Washington, DC, American Psychiatric Association, 1994.

Beck, A.T., Ward, C.H., Mendelson, M., Mock, J., Erbaugh, J., (1961). An inventory for measuring depression. *Archives General Psychiatry* 4:561-71.

Beck, N.C., Lambert, J., Gamache, M., Lake, E.A., Fraps, C.L., McReynolds, W.T., Reaven, N., Heisler, G.H., & Dunn, J. (1987). Situational factors and behavioral self-predictions in the identification of clients at high risk to drop out of psychotherapy. *Journal of Clinical Psychology*, 43(5), 511-520.

Becker M. (1974). The health belief model and personal health behavior. *Health Education Monographs*, 2:324-473.

Becker, M. H., Maiman, L. A., Kirscht, J. P., Haefner, D. P., Drachman, R. H. & Taylor, D. W. (1979). Patient perceptions and compliance: recent studies of the health belief model. In R. B. Haynes, D. W. Taylor & D. L. Sackett (Eds.). *Compliance in Health Care*. Baltimore, MD: John Hopkins University Press.

Beckman, H. B. & Frankel, R. M. (1984). The effect of physician behavior on the collection of data. *Ann Internal medicine*, 101:692-696.

Berardo, D. H., Kimberlin, C.L., Barnett, C. W. (1989). Observational research on patient education activities of community pharmacists. *Journal of Social and Administrative Pharmacy*, 6, 21-30.

Blackburn, I.M., Bishops, , Glen, A.I.M., Whalley, C.T., &

- Christie, J.E. (1981). The efficacy of cognitive therapy in depression: a treatment trial using cognitive treatment and pharmacotherapy, each alone and in combination. *British Journal of Psychiatry*, 139, 181-9.
- Blacker C.V.R. & Clare A.W. (1987). Depressive disorder in primary care. *British Journal of Psychiatry*, 150:737-751.
- Blazer, D., George, L., & Landerman, R. (1986). The phenomenology of late life depression. In P. Bebbington & R. Jacoby (Eds.). *Psychiatric disorders in the elderly*. London: Mental Health Foundation.
- Bond, C. A. & Salinger, R. J. (1979). Fluphenazine outpatient clinics: a pharmacist's role. *Journal of Clinical Psychiatry*, 40, 501-5.
- Bowden, C.L., Schoenfeld, L.S., & Adams, R.L. (1980). A correlation between dropout status and improvement in a psychiatric clinic. *Hospital & Community Psychiatry*, 31(3), 192-195.
- Burgoon, M., Birk, T. S. & Hall, J. R. (1991). Compliance and satisfaction with physician-patient communication: An expectancy theory interpretation of gender differences. *Human Communication REsearch*, 18(2):177-208.
- Carmines, E.G. & Zeller, R.A. (1979). Reliability and validity assessment. Series: Quantitative application in the social sciences series, no.07-017. Newbury Park, CA:Sage.
- Chesney, A. P., Brown, K. A., Poe, C. W., Gary, H. E. Jr. (1983). Physician-patient agreement on symptoms as a predictor of retention in outpatient care. *Hospital and Community Psychiatry*, 34, 737-9.
- Chewning, B. & Svarstad, B.L. (1991). The international medication compliance project: final report. Sonderegger Research Center. School of Pharmacy University of Wisconsin-Madison.
- Cockerham, W. C. (1993). The changing pattern of physician-patient interaction. In J. M. Clair & R. M. Allman (Eds.).

Sociomedical perspectives on patient care. Lexington, KY: University Press of Kentucky.

Cody, R.P. & Smith, J.K. (1991). Applied statistics and the SAS programming language (3rd ed.) New Jersey: Prentice Hall.

Cohen, J. & Cohen, P. (1983). Applied multiple regression/correlation analysis for the behavioral sciences (2nd ed.). New Jersey: Lawrence Erlbaum Associates.

Denzin, N. K. (1992). Symbolic interactionism and cultural studies: The politics of interpretation. Cambridge, MA: Blackwell.

Depression Guideline Panel. Depression in primary care: volume 1. Detection and Diagnosis. Clinical practice guideline, number 5. Rockville, MD. U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research. AHCPR Publication No. 93-0550. April 1995.

Depression Guideline Panel. Depression in primary care: volume 2. Treatment of major depression. Clinical practice guideline, number 5. Rockville, MD. U.S. Agency for Health Care Policy and Research. AHCPR Publication No. 93-0551. April 1993.

DeVellis, R.F. (1991). Scale development theory and applications: Applied social research methods series, vol.26. Newbury Park, CA: Sage.

DiMatteo, M.R., Sherbourne, C.D., Hays, R.D., Ordway, L., Kravitz, R. L., McGlynn, E.A., Kaplan, S. & Rogers, W.H. (1993). Physicians' characteristics influence patients' adherence to medical treatment: Results from the medical outcomes study. Health Psychology 12(2):93-102.

Dominguez, R.A., Goldstein, B.J., Jacobson, A.F., & Steinbook, R.M. (1985). A double-blind placebo-controlled study of fluvoxamine and imipramine in depression. Journal of Clinical Psychiatry, 46, 84-87.

Dorevitch, A., Aronzon, R., Zilberman, L. (1993). Medication

maintenance of chronic schizophrenic out-patients by a psychiatric clinical pharmacist: 10-year follow-up study. *Journal of Clinical Pharmacy and Therapeutics*, 18, 183-186.

*Drug Topics*, April 1995; April 1996; April 1997.

Ensel, W. M. (1986). Measuring depression: the CES-D scale. In Lin, N., Dean, A., Ensel, W. M. (Eds.). *Social Support, Life Events and Depression*. New York: Academic Press.

Falvo, D. R. (1994). *Effective patient education: a guide to increased compliance*. 2nd edition. Gaithersburg, MD: Aspen.

Fawcett, J., Zajecka, J.M., Kravitz, H.M., Edwards, J., Jeffriess, H., & Scorza, E. (1989). Fluoxetine versus amitriptyline in adult outpatients with major depression. *Current Therapeutic Research*, 45(5), 821-832.

Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley, 1975.

Fowler, F.J. & Mangione, T.W. (1990). *Standardized survey interviewing; minimizing interviewer-related error*. Applied Social Research Methods Series, Vol. 18. Newbury Park, CA: Sage.

Frank, A. F. & Gunderson, J. G. (1990). The role of the therapeutic alliance in the treatment of schizophrenia. Relationship to course and outcome. *Archives of General Psychiatry*, 47, 228-236.

Frey, J. H. (1989). *Survey research by telephone*, 2nd ed., vol. 150, Sage library of social research. Newbury Park, CA: Sage.

Friedman, H. S. (1982). Nonverbal communication in medial interaction. In H. S. Friedman & M R. DiMatteo (Eds.). *Interpersonal issues on health care* (pp.51-66). Orlando, FL: Academic Press.

Garfield, S.L. (1986). Research on client variables in psychotherapy. In S.L. Garfield & A.E. Bergin (Eds.),

Handbook of psychotherapy and behavior change (3rd ed. pp. 213-256), New York: John Wiley.

Goffman, E. (1959) The presentation of self in everyday life. Garden City, NY: Doubleday.

Goldbert, D. (1972). The detection of psychiatric illness by questionnaire. London: Oxford University Press.

Greenfield, S., Kaplan, S., & Ware, J. E. (1985). Expanding patient involvement in care. *Annals of Internal Medicine*, 102: 520-528.

Greenfield, S. et al (1988). Patients' participation in medical care: Effects on blood sugar control and quality of life in diabetes. *Journal of General Internal Medicine*, 3: 448-457.

Gunderson, J.G., Frank, A.F., Ronningstam, E.F., Wachter, S., Lynch, V.J., & Wolf, P.J. (1989). Early discontinuance of borderline patients from psychotherapy. *The Journal of Nervous and Mental Disease*, 177, 38-42.

Hamilton, M. (1960). A rating scale for depression. *Journal of Neurological Neurosurgery Psychiatry*, 23, 56-62.

Hayes Druggist Directory 1995

Haynes, R. B., Taylor, D. W. & Sackett, D. L. (1979). Compliance in health care. Baltimore, MD: John Hopkins University Press.

Hynan, D. (1990). Client reasons and experiences in treatment that influence termination of psychotherapy. *Journal of Clinical Psychology*, 46(6), 891-895.

Inui, T.S., Carter, G. & Pecoraro, R.E. (1981). Screening for noncompliance among patients with hypertension: is self-report the best available measure? *Medical Care*, 19:1061-1064.

Inui, T. S., Yourtee, E. L., & Williamson, J. W. (1976). Improved outcomes in hypertension after physician tutorials:

a controlled trial. *Annals of Internal Medicine*, 84:646-651.

Jack, D. C. (1991). *Silencing the self*. Cambridge, MA: Harvard University Press.

Jamison, K. R. (1995). *An unquiet mind*. New York: Alfred A. Knopf.

Janz, N., & Becker, M. (1984). The health belief model: a decade later. *Health Education Quarterly*, 11, 1-47.

Johansen, I. B. T. & Mount, J. (1997). [Implementation of the PharmCare program into Wisconsin community pharmacies: How does it happen and how is it experienced by staff members]. Unpublished work in progress.

Johnson, D.A.W. (1981). Depression: treatment compliance in general practice. *Acta Psychiatrica Scandinavica*, 290 (suppl), 447-453.

Johnson, J., Weissman, M.M., & Klerman, G.L. (1992). Service Utilization and social morbidity associated with depressive symptoms in the community. *Journal of the American Medical Association*, 267, 1478-1483.

Joos, S. K. & Hickam, D. H. (1990). How health professionals influence health behavior: Patient-provider interaction and health care outcomes. In K. Glanz, F. Marcus Lewis & B. K. Rimer (Eds.). *Health behavior and health education: Theory research and practice* (pp. 216-241). San Francisco, CA: Jossey-Bass.

Kaplan, H. I. & Sadock, B. J. (1996). *Concise textbook of clinical psychiatry*. Baltimore, MA: Williams & Wilkins.

Katon, W. & Roy-Byrne, P.P. (1988). Antidepressants in the medically ill: diagnosis and treatment in primary care. *Clinical Chemistry*, 34 (5):829-36.

Katon, W., Robinson, P., von Korff, M., Lin, E., Bush, T., Ludman, E., Simon, G. & Walker, E. (1996). A multifaceted intervention to improve treatment of depression in primary care. *Archives of General Psychiatry*. 53(10): 924-32.

Katon, W., von Korff, M., Lin, E., Bush, T., & Ormel, J. (1992). Adequacy and duration of antidepressant treatment in primary care. *Medical Care*, 30(1), 67-76.

Katon, W., von Korff, M., Lin, E., Walker, E., Simon, G.E., Bush, T., Robinson, P. & Russo, J. (1995). Collaborative management to achieve treatment guidelines, Impact on depression in primary care. *JAMA* 273(13):1026-31.

Kimberlin, C. L. (1989). Communication. In A. I. Wertheimer & M. C. Smith (Eds.), *Pharmacy practice: social and behavioral aspects*, 3rd ed. (pp. 159-177). Baltimore, MA: Williams & Wilkins.

Kirking, D. M. (1982). Pharmacists perceptions of their patient counseling activities. *Contemporary Pharmacy Practice*, 5: 242-244.

Kleinman, A. (1986). *Social origins of distress and disease; Depression, neurasthenia, and pain in modern china*. New Haven: Yale.

Kovacs, M., Rush, A.J., Beck, A.T. & Hollon, S.D. (1981). Depressed outpatients treatment with cognitive therapy or pharmacotherapy: a one-year follow-up. *Archives of General Psychiatry* 38:33-41.

Last, C.G., Thase, M.E., Hersen, M., Bellack, A.S., Himmelhoch, J.M. (1985). Patterns of attrition for psychosocial and pharmacologic treatments of depression. *Journal of Clinical Psychiatry*, 46(9), 361-6.

Leventhal, H., Nerenz, D. R., Steele, D. J. (1984). Illness representations and coping with health threats. In A. Baum & J. Singer (Eds.). *A Handbook of Psychology and Health*. Hillsdale, NJ: Erlbaum Associates, 219-252.

Leventhal, H. (1985). The role of theory in the study of adherence to treatment and doctor-patient interactions. *Medical Care*, 23, 556-563.

Leventhal, H., & Cameron, L. (1987). Behavioral theories and

the problem of compliance. *Patient Education and Counseling*, 10, 117-138.

Leventhal, H., Leventhal, E. A. & Schaefer, P. (1991). Vigilant coping and health behavior: A life span problem. In M. Ory & R. Abeles (Eds.). *Aging, health, and behavior* (pp.109-140). Baltimore, MD: Johns Hopkins.

Leventhal, H., Zimmerman, & Guttman (1984). *Self Regulation System Theory*.

Ley, P. (1983). Patients' understanding and recall in clinical communication failure. In D. Pendleton & J. Hasler (Eds.). *Doctor-patient communication*. London: Academic Press.

Lin, E.H.B., von Korff, M., Katon, M., Bush, T., Simon, G.E., Walker, E., & Robinson, P. (1995). The role of the primary care physician in patients' adherence to antidepressant therapy. *Medical Care*, 33(1), 67-74.

Linden, M., Osterheider, M., Nickelsen, T., & Schaaf, B. (1993). Three types of early termination of antidepressant drug treatment. *International Clinical Psychopharmacology*, 8, 345-6.

Loether, H. J. & McTavish, D. G. (1974). *Descriptive statistics for sociologists an introduction*. Boston: Allyn & Bacon, Inc.

Maiman, L. A., etal. (1988). Improving pediatricians' compliance-enhancing practices: A randomized trial. *American Journal of Diseases of Children*, 142: 773-779.

Manton, K.G., Blazer, D. G., & Woodbury, M.A. (1987). Suicide in middle age and later life: sex and race specific life table and cohort analyses. *Journal of Gerontology* 42: 219-227.

Markides, K. S. (Ed.). (1989). *Aging and health: perspectives on gender, race, ethnicity, and class*. Newbury Park, CA: Sage.

Markowitz, J.S., Rabkin, J.G., McGrath, P.J., Stewart, J., &

- Quitkin, F.M. (1985). Attrition and its consequences in a clinical trial of placebo, imipramine and phenelzine. *Psychopharmacology Bulletin*, 21, 107-109.
- Mason, H. L. (1979). The pharmacist's medication counseling role: Attitudes and behavior of community practitioners. (Doctoral dissertation, School of Pharmacy, University of Wisconsin Madison).
- Mason, H. L. & Svarstad, B. L. (1984). Medication counseling behaviors and attitudes of rural community pharmacists. *Drug Intell Clin Pharm*, 18:409-414.
- McCombs, J.S., Nichol, M.B., Stimmel, G.L., Sclar, D.A., Beasley, C.M.Jr., & Gross, L.S. (1990). The cost of antidepressant drug therapy failure: a study of antidepressant use patterns in a medicaid population. *Journal of Clinical Psychiatry*, 51(6,Suppl) 60-69.
- McGuire, W. J. (1985). Attitudes and attitude change. In Lindzey, G. & Aronson, E. (Eds.). *Handbook of Social Psychology*, Volume II, 3rd ed. New York: Random House.
- McKenney, J. M., Brown, E. D., Neccary, R. & Reavis, H. L. (1978). Effect of pharmacist drug monitoring and patient education on hypertensive patients. *Contemporary Pharmacy Practice*, 1, 50-55.
- McKenney, J.M., Munroe, W.P. & Wright, J. T. (1992). Impact of an electronic medication compliance aid on long-term blood pressure control. *J Clin Pharmacol* 32: 277-283.
- Mechanic, D., McAlpine, D., Rosenfield, S., & Davis, D. (1994). Effects of illness attribution and depression on the quality of life among persons with serious mental illness. *Social Science & Medicine*, 9, 155-164.
- Meichenbaum, D. & Turk, D. C. (1987). Facilitating treatment adherence: A practitioner's guidebook. New York, NY: Plenum Press.
- Menard, S. (1991). Longitudinal Research. Sage University Paper Series on Quantitative Application in the Social

Sciences, 07-076. Newbury Park, CA: Sage.

Mesters, P., Cosyns, P., Dejaiffe, G., Fanielle, J., Gilles, C., Godderis, J., et. al. (1993). Assessment of quality of life in the treatment of major depressive disorder with fluoxetine, 20 mg., in ambulatory patients aged over 60 years. *International Clinical Psychopharmacology*, 8:337-340.

Miller, G. R. (1972). *An introduction to speech communication*, 2nd ed. New York: Bobbs & Merrill Co., Inc.

Moon, C.A., Chapman, J.P., Healey, J. C., Hannington, J. A. (1990). The treatment of mixed affective disorders in general practice: a comparison of trazodone and dothiepin. *Current Medical Research and Opinion*, 12(1):34-42.

Morris, L. (1982). A survey of patients' receipt of prescription drug information. *Medical Care*, 20:596.

Mount, J. K. (1992). Nursing home responsiveness to research requests: Results of a field study. *The Gerontologist*, 32(3): 414-419.

Murphy, E. & Brown, G.W. (1980). Life events, psychiatric disturbance and physical illness. *British Journal of Psychiatry* 136: 326-338.

Murphy G.E., Simons, A.D., Wetzel, R.D., & Lustman, P.J. (1984). Cognitive therapy and pharmacotherapy. Singly and together in the treatment of depression. *Archives of General Psychiatry*, 41,33-41.

Myers, E.D., & Calvert, E.J. (1984). Information, compliance & side-effects: a study of patients on antidepressant medication. *British Journal of Clinical Pharmacology*, 17, 21-25.

Narrow, W.E., Regier, D.A., Rae, D. S., Manderscheid, R.W., & Locke, B. Z. (1993). Use of services by persons with mental and addictive disorders: findings from the national institute of mental health epidemiologic catchment area study. *Archives of General Psychiatry*, 50, 95-107.

- Newmann, J. P., Engel, R.J., & Jensen, J.E. (1991). Age differences in depressive symptom experiences. *Journal of Gerontology* 46: 224-235.
- Ortiz, M., Walker, W. L., Thomas, R. (1992). Community pharmacists' professional role orientation. *Journal of Social Administrative Pharmacy*, 9, 97-103.
- Ory, M. G. & Bond, K. (Eds.). (1989). *Aging and health care: Social science and policy perspectives*. New York, NY: Routledge.
- Pande, A.C., & Sayler, M.E. (1993). Adverse events and treatment discontinuations in fluoxetine clinical trials. *International Clinical Psychopharmacology*, 8, 267-269.
- Paykel, E. S. (1995). Psychotherapy, medication combinations and compliance. *Journal of Clinical Psychiatry*, 56 (suppl):24-30.
- Pekarik, G. (1992). Relationship of clients' reasons for dropping out of treatment to outcome and satisfaction. *Journal of Clinical Psychology*, 48(1), 91-98.
- Pekarik, G., & Finney-Owen, K. (1987). Outpatient clinic therapist attitudes and beliefs relevant to client dropout. *Community Mental Health Journal*, 23(2), 120-130.
- Rantucci, M. J. (1997). *Pharmacists talking with patients: A guide to patient counseling*. Baltimore, MA: Williams & Wilkins.
- Regier, D. A., Myers, J.K., Kramer, M., Robins, L.N., Blazer, D. G., Hough, R. L., et. al. (1984). The NIMH epidemiologic catchment area program. Historical context major objectives and study population characteristics. *Archives of General Psychiatry*, 41 (10), 934-41.
- Regier, D. A., Hirschfeld, R. M., Goodwin, F. K., Burke, J. D., Jr., Lazar, J. B., Judd, L.L. (1988). The NIMH depression awareness, recognition and treatment program: structure, aims, and scientific basis. *American Journal of Psychiatry*, 145(11), 1351-7.

- Roback, H. B., & Smith, M., (1987). Patient attrition in dynamically oriented treatment groups. *American Journal of Psychiatry*, 144(4): 426-31.
- Robinson, E. J. & Whitfield, M. J. (1995). Improving the efficiency of patients' comprehension monitoring: A way of increasing patients' participation in general practice consultations. *Social Science & Medicine*, 21:915-919.
- Robinson, P., Bush, T., von Korff, M., Katon, W., Lin, E., Simon, G. E. & Walker, E. (1995). Primary care physician use of cognitive behavioral techniques with depressed patients. *Journal of Family Practice*, 40(4): 352-357.
- Rodin, J. & Janis, I. L. (1982). The social influence of physicians and other health care practitioners as agents of change. In H. S. Friedman & M R. DiMatteo (Eds.). *Interpersonal issues on health care* (pp.33-49). Orlando, FL: Academic Press.
- Rosenstock, I. M. (1966). Why people use health services. *Milbank Memorial Fund Quarterly*, 44, 94-127.
- Rosenstock, I. M. (1985). Understanding and enhancing patient compliance with diabetic regimens. *Diabetic Care* 8(6):610-616.
- Rossi, P.H., Wright, J. D. & Anderson, A. B. (1983). *Handbook of survey research: Quantitative studies in social relations*. San Diego, CA: Academic Press.
- Rost, K., Carter, W., Inui, T. (1989). Introduction of information during the initial medical visit: consequences for patient follow-through with physician recommendations for medication., *Social Science & Medicine*, 28, 315-21.
- Roter, D. & Frankel, R. (1992). Quantitative and qualitative approaches to the evaluation of the medical dialogue. *Social Science & Medicine*, 34, 1097-1103.
- Roter, D. L. & Hall, J. A. (1989). Studies of doctor-patient interaction. *Annual Review of Public Health*, 10, 163-180.

Roter, D. L. & Hall, J. A. (1992). Doctors talking with patients, patients talking with doctors: improving communication in medical visits. Westport, CT: Auburn House.

Rush, A.J., Beck, A.J., Kovacs, M., & Hollon, S. (1977). Comparative efficacy of cognitive therapy and pharmacotherapy in the treatment of depressed outpatients. *Cognitive Therapy and Research* 1(1), 17-37.

SAS System for Information Delivery Release 6.11, Windows. (1995). SAS Institute Inc., Cary, N.C.

Schnieder, J. W. & Conrad, P. (1983). Having epilepsy the experience and control of illness. Philadelphia: Temple University Press.

Simon, G.E., vonKorff, M., Wagner, E.H., & Barlow, W. (1993). Patterns of antidepressant use in community practice. *General Hospital Psychiatry* 15, 399-408.

Simons, A.D., Levine, J.L., Lustman, P.J., Murphy, G.E. (1984). Patient attrition in a comparative outcome study of depression. A follow-up report. *Journal of Affective Disorders*, 6(2), 163-173.

Singleton, R. Jr., Straits, B. C. , Straits, M. M., & McAllister, R. J. (1988). *Approaches to Social Research*. New York: Oxford University Press.

Sleath, B.L. (1993). Patient gender and psychotropic prescribing during the physician-patient interaction. (Doctoral dissertation, School of Pharmacy, University of Wisconsin Madison).

Song, F., Freemantle, N., Sheldon, T.A., House, A., Watson, P., Long, A., & Mason, J. (1993). Selective serotonin reuptake inhibitors: meta-analysis of efficacy and acceptability. *British Medical Journal*, 306, 683-687.

SPSS/PC+ by SPSS Inc. (1988). Chicago, IL.

Stewart, M. (1984). What is a successful doctor - patient interview? A study of interactions and outcomes. *Social*

Science & Medicine, 19, 167 -175.

Stewart, M. (1987). The validity of an interview to assess a patient's drug taking. *American Journal of Preventive Medicine*, 3(2):95-100.

Stoudemire, A., Frank, R., Hedemark, N., Kamlet, M., Blazer, D. (1986). The economic burden of depression. *General Hospital Psychiatry*, 8, 387-394.

Street, R. L. (1992). Analyzing communication in medical consultations. Do behavior measures correspond to patients' perceptions? *Medical Care*, 30, 976-988.

Sullivan, G., Wells, K.B., & Leake, B. (1992). Clinical factors associated with better quality of life in a seriously mentally ill population. *Hospital & Community Psychiatry*, 43, 794-798.

Svarstad, B. L. (1974). The doctor-patient encounter: An observational study of communication and outcome. (Doctoral dissertation, Department of Sociology, University of Wisconsin Madison).

Svarstad, B.L. (1976). Physician-patient communication and patient conformity with medical advice. In D. Mechanic (ed.) *The Growth of Bureaucratic Medicine: an inquiry into the dynamics of patient behavior and the organization of medical care*. New York: Wiley pp. 220-238.

Svarstad, B.L. (1985). The relationship between patient communication and compliance. *Topics in pharmaceutical sciences*. 381-390.

Svarstad, B.L. (1986). Patient-practitioner relationships and compliance with prescribed medical regimens. In L.H. Aiken & D. Mechanic (Eds.), *Applications of Social Science to Clinical Medicine and Health Policy* (pp438-459). New Brunswick: Rutgers University Press.

Svarstad, B. L., Mason, H., Schuna, A. (1979). Factors affecting pharmacists' communication behavior: an observational study. Presented at the annual meeting of the

American Association of Colleges of Pharmacy, July.

Svarstad, B.L., & Mount, J.K. (1992). The Social Systems Perspective on Patient Care. In T. Brown and M. Smith (Eds.), The Handbook of Institutional Pharmacy Practice, third edition.

Szasz, T.S., & Hollender, M.H. (1956). A contribution to the philosophy of medicine: the basic models of the doctor-patient relationship. Archives of Internal Medicine, 97, 585-592.

Verbrugge, L. M. (1984). Longer life but worsening health? Trends in the health and mortality of middle-aged and older persons. Milbank Memorial Fund Quarterly/ Health and Society, 62: 475-519.

Verbrugge, L. M. (1989). Recent, present, and future health of american adults. In L. Breslow, J. E. Fielding, & L. B. Lave (Eds.). Annual review of public health, vol.10. Palo Alto, CA: Annual Reviews.

Von Korff, M., Ormel, J., Katon, W. & Lin, E. (1992). Disability and depression among high utilizers of health care: a longitudinal analysis. Archives Gen Psychiatry 49:91-100.

Waggoner, D. M., Jackson, E. B. & Kern, D. E. (1981). Physician influence on patient compliance: A clinical trial. Annals of Emergency Medicine 10:348-352.

Waitzkin, H. (1984). Doctor - patient communication clinical implications of social scientific research, JAMA, 252, 2441-6.

Waitzkin, H. (1985). Information giving in medical care, Journal of Health and Social Behavior, 26, 81-101.

Waitzin, H. & Britt, T. (1993). Processing narratives of self-destructive behavior in routine medical encounters: health promotion, disease prevention, and the discourse of health care. Social Science & Medicine, 36, 1121-1136.

- Waitzkin, H., Britt, T. & Williams, C. (1993). Incomplete narratives of aging and social problems in routine medical encounters. In J. M. Clair & R. M. Allman (Eds.). Sociomedical perspectives on patient care. Lexington, KY: University Press of Kentucky.
- Weiderholt, J. B., Clarrige, B. R. & Svarstad, B. L. (1992). Verbal consultation regarding prescription drugs; Findings from a statewide study. *Medical Care*. 30:159-173.
- Weismann, M.M., Prusoff, B.A., DiMascio, A., Neu, C., Goklaney, M., & Klerman, G.L. (1979). The efficacy of drugs and psychotherapy in the treatment of acute depressive episodes. *American Journal of Psychiatry*, 136, 555-558.
- Wells, K.B., Stewart, A., Hays, R.D., etal (1989). The functioning and well-being of depressed patients: results from the medical outcomes study. *Journal of the American Medical Association*, 262, 914-919.
- Wexler, B.E., & Cicchetti, D.V. (1992). /The outpatient treatment of depression: implications of outcome research for clinical practice. *Journal of Nervous and Mental Disease*, 180(5), 277-286.
- Wisconsin 5-digit zip codes by county. (1992). Department of Health and Social Services, Division of Health Center for Health Statistics.
- Wisconsin Legislative Reference Bureau. State of Wisconsin 1991-1992 Blue Book. Madison, Wisconsin.
- Zung, W. & Durham, N. C. (1965). A self-rating depression scale. *Archives of General Psychiatry*, 12, 63-70.