AN INVESTIGATION OF
THE PHARMACIST-PATIENT RELATIONSHIP AS SOCIAL EXCHANGE

by

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Show me your ways, O Lord,
  teach me your paths;
guide me in your truth and teach me,
  for you are God my Savior,
  and my hope is in you all day long.

Psalm 25:4-5

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ABSTRACT

The study objective was to investigate the composition and dynamics of the interpersonal aspect of the pharmacist-patient relationship. The study was exploratory and was conducted from the patient's perspective in two clinics wherein pharmacists monitor patient use of warfarin, a prescription blood anticoagulant. Because all dyadic relationships, including service relationships, are believed to be built on repeated exchange, and to exist within a norm of reciprocity, Social Exchange Theory was used to frame the study. Four constructs were conceptualized and measured using multi-item scales developed for this study: Felt Indebtedness toward the pharmacist (FI), Collaborative Willingness (CW), pharmacist's Interpersonal Relationship Quality (IRQ) (including dimensions of trustworthiness, caring and respectfulness), and Warfarin Beliefs (WB) (measuring believed severity of and susceptibility to warfarin use). Critical, exchange-based incidents between patients and pharmacists also were explored to study whether patients' ability to report a memorable interpersonal incident is associated with other study constructs related to the pharmacist-patient relationship. Eight hypotheses were proposed testing associations among constructs.

Both qualitative and quantitative data were collected. First, two convenience samples of clinic patients were interviewed (n=13 and n=11) to obtain patient perceptions of the interpersonal nature of the pharmacist-patient relationship for construct development and to conduct process-based survey content validation (n=11). Following survey revisions, two probabilistic samples were mailed the resulting survey, a pilot sample of patients from both clinics (n=50) for preliminary measure purification and a final sample of 247 patients from

both clinics. Response rates were 58% for the pilot survey and 70% for the final survey. Due to problems with missing items or "Does Not Apply" responses, 122 of the final mail surveys (49.4%) were retained for the data analysis.

Using exploratory factor and reliability analyses, the four multi-item measures were purified, resulting in measures with acceptable internal consistency. Coefficient alpha values were .820 (CW), .983 (IRQ), and .914 (WB), and the Pearson correlation of the two-item Felt Indebtedness scale was 0.763. Least-squares regression, used to test the proposed associations between study constructs, supported six of the eight hypotheses. Interpersonal Relationship Quality was found to predict patients' Felt Indebtedness and Collaborative Willingness. Patients report of a (positive) Critical Interpersonal Incident with their pharmacist was found to predict both Felt Indebtedness and Interpersonal Relationship Quality. Results also suggested Interpersonal Relationship Quality acted as mediator between patients' Warfarin Beliefs and their willingness to collaborate with the pharmacist (CW).

Study results are congruent with Social Exchange Theory, supporting the norm of reciprocity. How much patients perceive their pharmacist to be trustworthy, caring and respectful, measured as Interpersonal Relationship Quality, appears to be an important construct for patient collaboration, and for mediating the effects of patients' beliefs about their pharmacist-service specific medication (warfarin) on Collaborative Willingness. Critical Interpersonal Incidents also appear to be a useful construct to pursue when studying the pharmacist-patient relationship. An implication for pharmacists is that they may need to seize opportunities in patient care situations to become more personally involved in patients' lives holistically and to exceed patients' expectations, in order to create perceptions that foster

patient collaboration. Although this study was conducted on a limited patient population in two anticoagulation clinics making its results not generalizable to other pharmacy practice settings, this investigation introduces a novel way to conceptualize and study the pharmacist-patient relationship and provides a basis on which to build future research.

1. INTRODUCTION

BACKGROUND

There is an effort today in health care to bring the patient, as a unique individual with needs, desires and preferences, to the forefront of practice. The Institute of Medicine released a statement in 1994 advocating the patient to be treated as a whole person, not a disease. This statement encourages the development of a "sustained partnership" between physician and patient, a relationship in which both agree on goals and work together for the patient's good (Leopold, Cooper and Clancy 1996). Likewise, pharmacy has been described to be on a journey that is "leading the profession back to the patient" (Knowlton 1997, p.361). A product- or service-oriented care ensuring the right drug is dispensed to the right patient at the right time is beginning to shift to a more patient-oriented care wherein the pharmacist's focus is on ensuring the needs of the patient are satisfied (McCarthy 1996).

This movement is evidenced by profession-wide resolutions and newly proposed models and paradigms of practice for pharmacists. The Code of Ethics for Pharmacists, adopted by the membership of the American Pharmaceutical Association in 1994, advocates that a pharmacist respect the covenant relationship between the patient and the pharmacist and promote the good of every patient in a caring, compassionate, and confidential manner. In this code, the dignity of each patient, and the pharmacist's honesty and integrity are emphasized. The American Society of Health System Pharmacists' statement on pharmaceutical care notes that "at the heart of any type of patient care there exists a one-to-one relationship between the care giver and the patient" and that "in pharmaceutical care, the

irreducible 'unit' of care is one pharmacist in a direct professional relationship with one patient" (AJHP 1993, 50, 1721).

The Client-Centered Model proposed by Chewning and Sleath (1996) suggests pharmacists and patients work closely together in medication decision-making and management. A spirit of collaboration is described in which client's (patient's) priorities and quality of life are emphasized, and greater control and status are relinquished by the pharmacist and given to the patient. Pharmaceutical Care directs pharmacists to attend to and understand their patients' needs in order to best problem solve on their behalf (Hepler and Strand 1990). The first step of the Pharmaceutical Care process is to establish the pharmacist-patient relationship in which contact with and commitment to the patient are achieved (Strand, Cipolle, and Morley 1992). Indeed, within all of these practice paradigms lies a requirement for a "more intimate and intensive relationship between the pharmacist and the patient" (Berger 1993, p. 2399).

This relationship is not new. Despite the historical emphasis on the earlier scientific and clinical "waves" or movements within pharmacy education and practice (Hepler 1987) resulting in product- and service-orientation, people reminisce about the interpersonal relationship between the community pharmacist and the patient during the days of corner drug stores. These were the days when patients were known by name, the drug store was a center of community activity and the patient relied on the pharmacist for health-related advice. This relationship exists today, though perhaps less frequently, due to changes within communities, consumer mobility and availability of pharmacies within the marketplace. In spite of these marketplace changes, the profession of pharmacy indeed seems determined to "journey" back

to the patient. One consideration in this pursuit is a better understanding of the potential relationship that can develop between a patient and his or her pharmacist.

NEED FOR THE RESEARCH

The need for and potential for an interpersonal pharmacist-patient relationship is evidenced by the push for collaborative care (Chewning and Sleath 1996; Strand 1997) and the advocated covenant promise-making (APhA Code of Ethics). Recent interest into the pharmacist-patient relationship is seen through published commentary and theoretical analysis (Berger 1993; Chewning and Sleath 1996; McCarthy 1996). During the last several years there has been research conducted in the areas of pharmacist-patient communication within the context of individual service encounters (Schommer 1996; Sleath 1996). While these studies are helpful to answer questions related to the extent of communication between pharmacists and patients and their understanding of respective roles within this dyad, investigations into the composition and dynamics of the relationship between the pharmacist and the patient are few.

Studies pertaining to the pharmacist-patient relationship vary in their conceptualization of the pharmacist-patient relationship, in their approach to study, and in their perspective sought. The pharmacist-patient relationship was studied by researchers from the pharmacists' perspective (Lawrence et al. 1995). Pharmacists' preferences of a covenant or contract type of relationship and attitudes toward each dyad member's responsibilities and duties were investigated through a mail survey. Worley (1996) and Summers-Hayward (1994), both using mail surveys, investigated the pharmacist-patient relationship within the community pharmacy

setting from the patient's perspective. Worley (1996) applied a service marketing model, defining relationship quality in terms of patient satisfaction with and trust of the pharmacist and studying associations among pharmacist expertise, relation building behaviors, relationship quality and relationship commitment. Theory within social psychology and nursing were used by Summers-Hayward (1994) to conceptualize interpersonal, affective influences of pharmacist-patient relations on the patient-related outcomes of perceived trust of the pharmacist, compliance, satisfaction, and commitment.

The pharmacist's relationship with the patient has begun to be studied within pharmacy, yet deserves more attention and broader theoretical perspective. Expanded methodologies are needed to investigate and comprehend the specific constructs that underlie and potentially influence the collaborative and interpersonal relationship that can develop between a pharmacist and a patient. The limited amount of empirical research conducted to investigate the pharmacist-patient relationship and the limited data collection techniques offer opportunities for research into this area. While researchers have theorized, identified and measured various dimensions or constructs of the physician-patient, nurse-patient and service provider-client relationship, little research has been conducted to identify and measure such constructs from the patient perspective within the pharmacist-patient relationship. That which has been done to uncover this perspective has relied upon previous research outside of pharmacy such as nursing, marketing, and sociology (Summers-Hayward 1994; Worley 1996). Those researchers who have investigated this relationship have adapted or adopted in full previously developed measures to capture essences of the pharmacist-patient relationship. Also, most research has been limited to mail survey research and the community pharmacy

practice setting.

This study seeks to address this paucity of research and the limited methodology. It will be conducted from the patient's perspective. Measures will be developed for conceptualized constructs based on literature review and patient perspectives gained through both interview and survey techniques used within a pharmacy service setting. Investigating the pharmacist-patient relationship from the patient's viewpoint will help pharmacists to better understand patients' perceptions. The quality of the interpersonal aspect of care provided will be investigated and not the technical nature of care provision, the latter of which is believed to be less discernable by patients (Donabedian 1980). Insight gained about the interpersonal nature of this relationship from patients' perspectives may help pharmacists learn better how to foster the development of such relationships that may be necessary for patient-centered, problem-solving and collaboration within a service environment.

All relationships, regardless of the context, are understood to be built upon repeated social exchanges, changing and evolving over time (Czepiel 1990; Huston and Burgess 1979; Thorne 1993). From chronically ill patients' perspectives, relationships with health care providers appear to be emotionally-laden and characterized by changes in attitude and behaviors over time (Thorne and Robinson 1988). Therefore, the quality of the interpersonal exchanges between a pharmacist and patient within the social occasion of a service encounter are of interest. This includes the quality of and extent of communication-based exchanges from both the pharmacist and the patient, all from the patient perspective. Patients' feelings of indebtedness toward the pharmacists and patients' recall of exceptionally memorable service-based events of an interpersonal nature occurring between themselves and the pharmacists are

studied. Because individual characteristics and level of need within an exchange dyad are believed to influence social exchange (Huston and Burgess 1979) and hence, relationship building, patient's beliefs about their medication use as it relates to the service provided by the pharmacist also are investigated.

PURPOSE OF THE STUDY

In this study, the composition and dynamics of the interpersonal aspect of the pharmacist-patient relationship are investigated from the patient perspective. Research is conducted in a clinic setting wherein staff pharmacists assist patients with their chronic medication use. Specific research questions of this study are:

1. What can be learned from patients' perspectives, about the nature of the relationship they have with their pharmacist?

2. How do patients' perceptions of the pharmacist relate to or influence patients' own interaction with and feelings toward the pharmacist?

3. How do patients' beliefs about their medication use, related to the care received from the pharmacist, affect the relationship they develop with the pharmacist?

4. How do patients' experience of a memorable interpersonally-based service incident between themselves and the pharmacist influence their relationship with the pharmacist?

The primary objective of this research is to explore the interpersonal components and dynamics of the pharmacist-patient relationship within a clinic setting. To accomplish this, secondary objectives are to: (1) develop and refine measures of constructs believed to describe and influence the pharmacist-patient relationship, (2) learn how patients perceive the interpersonal components of their pharmacist's service provision, including what dimensions may exist, and (3) learn how patients' perceptions of their pharmacist relate to their Felt Indebtedness toward the pharmacist, Collaborative Willingness with the pharmacist, beliefs about their medication (specific to the pharmacist service), and experience of a positive interpersonally-based, critical incident with the pharmacist.

2. LITERATURE REVIEW

The pharmacist-patient relationship is unique in that it is between a service provider and a service recipient, or client. Although there likely are similarities between this type of relationship and those between clients and service providers outside of pharmacy, there are differences. In order to understand specifically the relationship between a pharmacist and a patient, there are three elements that will be addressed in this review of the literature: (1) how relationships between clients and service providers, in general, have been conceptualized, (2) how these relationships have been studied, and (3) what factors are believed to influence them. Within these elements pertinent to the study of the pharmacist-patient relationship, are considerations of the various literature bases investigating relationships. The service marketing literature focused on relationship building, the literature encompassing patient relationships with physicians and nurses, and that which discusses or studies the pharmacist-patient relationship will be presented. The theoretical framework also will be developed. Thus, the structure of this chapter will be as follows:

- Explanation of how the service provider-client relationship has been conceptualized and studied, including methodology and measurement, (within the general service marketing, and physician-patient and nurse-patient relationship areas).
- Exposition of the research conducted within pharmacy pertaining to the pharmacist-patient relationship.

- Development of the theoretical framework for the study.
- Presentation of the factors proposed to influence relationships in general, and the service provider-client relationship.

Service Provider-Client Relationships

Insight to the various dimensions of the pharmacist-patient relationship is found through published commentary, theoretical study and empirical research within several disciplines of study. It is within general service marketing where the service provider-client relationship is first considered.

Relationships in Service Marketing

Within the marketing of services, social exchange has been superimposed onto the existing economic exchange of the business between buyer and seller in order to understand and study the relationship that develops between these two parties. Because a service is not tangible or standardized, nor separable from the service provider (Kotler and Clarke 1987), considerations of the relational nature of service quality has become the focus of much research. What has resulted is personal selling research and discussion of the relationships that can develop between a service provider (seller) and a client (buyer).

Before developing a relationship in any service industry, health care included, two individuals (the service provider and client) must interact in a series of service encounters, which over time develop into an exchange relationship (Czepiel 1990). These service encounters are described to be "first and foremost social encounters" (McCallum and

Harrison, 1985, p.35). Service encounters also are described as occasions in which two individuals "negotiate and nurture the transformation of their accumulated encounters into an exchange relationship" (Czepiel 1990, p.13).

A review of the research in relationship marketing within the service industries reveals a focus on quality. Various tools and methods have been used to study and measure the quality of services and service providers (Crosby et al. 1990; Czepiel 1990; Mittal and Lassar 1996; Murray 1991; Parasuraman, Zeithaml and Berry 1988, 1994). This work has resulted, in part, in the identification of interpersonal dimensions of the client's evaluation of the service provider and in the modeling of variables associated with high quality service-based relationships.

The development of the SERVQUAL scale to measure client perceptions of the quality of service provision revealed ten potentially overlapping dimensions of service quality (Parasuraman, Zeithaml and Berry 1988). Among these dimensions of service quality identified were the reliability, responsiveness, credibility, courtesy and understanding nature of the service provider. Later revisions and testing of the SERVQUAL scale resulted in the five dimensions of: reliability, responsiveness, assurance, tangibles and empathy (Parasuraman, Zeithaml and Berry 1994), many of which are indicative of the relational nature of service provision. A SERVQUAL-P scale, further emphasizes these interpersonal relations by adding a personalization component to evaluate people-based service interactions (Mittal and Lassar 1996).

It has been hypothesized that personalization of a service, wherein a service provider acts as a consumer advocate and collaborator (customized personalization) or exchanges small

talk (programmed personalization), can affect the consumer's evaluation of that service and the provider (Surprenant and Solomon 1987). Researchers investigated the influence of these types of personalization on consumer evaluations using an experimental design, employing a bank service setting and manipulating the type and level of personalization of consumer service encounter. Using service quality dimensions identified by Parasuraman, Zeithaml and Berry (1988), semantic differential scaling of service-provider trait adjectives were used to assess how the service provider was evaluated. Programmed personalization was found to predict higher evaluations of service provider competence, sociability and friendliness, while customized personalization related to higher levels of perceived service provider helpfulness (Surprenant and Soloman 1987). Though limitations exist, these results suggest interpersonal social exchanges as well as genuine expressions of willingness to collaborate can act to influence client evaluations of a service provider.

Crosby et al. (1990) studied the service provider-client relationship, as perceived by the client, in whole life insurance sales, a service context in which customization is a primary function. A model was formulated and tested which examined the interrelationships between exogenous variables (those pertaining to service-provider attributes and behaviors inherent to the service), Relationship Quality (conceived as client satisfaction with and trust of the service provider), and the outcome variables of sales effectiveness and anticipation of future interaction. Surveys were mailed to a random sample of consumers participating in a national panel of policyholders for data collection. Multi-item measures were used to measure study constructs. Structural modeling of data resulted in conclusions that Relationship Quality contributes to a long-term service-based sales relationship between provider and client. Also,

interpersonal influences such as mutual disclosure by both dyad partners and high contact intensity were predictive of high Relationship Quality.

Physician-Patient Relationship

Although quality of service (care) has been a major focus of research in health care (e.g. Donabedian 1980), the structure and dynamics of relationships between health care providers and their patients predominantly have not been studied and theorized in terms of quality, as with general service marketing. In comparison to some other service industries, information asymmetry (Folland, Goodman and Stano 1993) and asymmetry in power (Roter 1987; Thorne 1993) between a health care provider and a patient predominates. The service is of a higher personal and confidential nature, satisfying basic human needs of mental, physical and social health and well-being. For these reasons, the relationship between health care provider and patient is uniquely different than those between non-health care service-client dyads, though the concept of social exchange and the importance of the interpersonal dimension are maintained. There are various models and conceptualizations to describe relationships between patients and health care professionals. To begin, the physician-patient relationship is presented through a review of theoretical writings describing and modeling the relationship.

Beginning in the early 1900s, Viktor von Gebsattel, a German physician and philosopher (1883-1976) depicted the physician-patient relationship longitudinally, to consist of three stages: (1) the elementary-sympathic or immediate, (2) the diagnostic-therapeutic, and (3) the personal (Welie 1995). He described the first stage to be the "thesis" of a physician's immediate sympathy for the patient. The second stage is considered to be the "antithesis", an

alienation of the patient by the physician occurring due to the physician's scientific approach and the loss of the individuality of the patient. Here, the patient is seen as the only competent person in the relationship, plausibly being the only party maintaining the personal or more wholly human aspect of the relationship. Though the relationship is active at this stage, each party is anonymous, and believed to be "...[an] exchangeable representative of the two classes of human beings, doctors and patients" (Welie 1995, p. 50).

The last stage recaptures an essence of a developing physician-patient relationship which was lost due to alienation. It is described as the "synthesis" of the personal partnership in which both physician and patient actively communicate as unique and individual persons. In this stage, the relationship is characterized as having an "internal aspect" (Welie 1995, p.46) and illustrates a mutual exchange through communication. In this stage, the patient not only has faith in the physician as a representative of a skilled profession, but trust of the individual physician himself, as "a loving fellow human being" (Welie 1995, p. 47). Here, the patient's trust of the physician appears to be a critical part of the relationship synthesis, and is associated with the social exchange of active communication between partners.

Aside from Von Gebsattel, most modeling of the physician-patient relationship has been somewhat cross-sectional, and not in developmental stages. One commonality, however, among most writers on this topic, including Von Gebsattel, is the inclusion or ideal of an interpersonal partnership between the physician and the patient.

Szasz and Hollender (1956) formally summarized the different physician-patient relationships existing in practice. First, acknowledging the intangibility of relationships, they describe a relationship as "neither a structure nor a function....[but] rather, an abstraction

embodying the activities of two interacting systems (persons)" (p. 101). In this article, three fundamental models were outlined and described as embracing the various modes of interaction pervasive in human relationships. Each represents varying degrees of power or control. The activity-passivity model involves an active physician and a passive patient and typifies the physician-patient relationship in which the patient is unable to respond (e.g. coma). The guidance-cooperation model underlies the paternalistic form of medical practice in which the physician, in a position of power, directs the patient, seeking cooperation from the patient in a prototypical parent-child relationship.

The third model is characterized by mutual participation through which the physician helps the patient to help him or herself. This type of partnership is characterized by mutual understanding in which each dyad member is understood to maintain and tolerate "the discrete individuality of the other" (Szasz and Hollender 1956, p.102). In this model of mutuality, communication-based exchange is evident. Critical to mutuality is the concept of each individual being somewhat equal in power, mutually interdependent and satisfied by the activity associated with the relationship. The model of mutual participation requires that both the physician and patient develop a more complex social and psychological organization than the other two models (Szasz and Hollender 1956), implying social exchange and exemplifying a highly developed interpersonal relationship.

In modeling the physician-patient relationship, Roter (1987) uses the similar dimensions of control and responsibility to describe three models of general client-provider relations. Similar to the guidance-cooperation model described by Szasz and Hollender, the authoritative or guidance model assumes client trust and provider altruism, as control and

responsibility for the physician are high, but low for the patient. The non-directive (or independent) decision making model is opposite to that of the authoritarian model with patient control and responsibility being high, but low for the physician.

The partnership model is similar to Szasz and Hollender's mutual participation model in that it involves active participation on the part of the patient. Characteristic of a partnership is the retained control and acceptance by both the patient and the physician for the responsibility of therapeutic decision-making. Unlike the mutual participation of Szasz and Hollender (1956), Roter's partnership (1987) preserves a greater element of the interpersonal, in that the latter more explicitly and thoroughly is intended to develop the personal side of the relationship through discussion between physician and patient of psychosocial information pertinent to diagnosis and treatment of the patient. Physicians practicing within this relationship model who solicit patients' psychosocial information during a service encounter promote mutual understanding and greater social exchange.

Aside from the modeling and commentary identifying power or control, responsibility, and social exchange, to be dimensions of the physician-patient relationship, an exploratory study investigating the patient perspective of the physician-patient relationship was conducted by Delbanco (1992). Results of the study showed different "dimensions of care" evolving from expressed patient concerns and comments (Delbanco 1992). A content analysis of the discussion from focus groups of patients, their families and other care givers revealed several dimensions, that appear to characterize the mutual participation or partnership models of Szasz and Hollender (1956) and Roter (1987). These dimensions are: (1) respect for patients' values, preferences and expressed needs, (2) adequate communication and education, (3)

involvement of family of friends in patient care and (4) emotional support to alleviate anxieties and fears.

Emanuel and Emanuel (1992) presented yet different models of the physician-patient relationship, incorporated not only the dimensions of power, control and responsibility, but the dimension of patient values and preferences identified by Delbanco (1992). Four distinctly different physician-patient interactions are outlined, depicting variations on the dimensions of physician role and obligation, and patient autonomy and values.

The informative and paternalistic models depict the physician as a competent technical expert or guardian who objectively presents facts, either viewing the patient's values as independently set (informative), or asking for patient assent to objective values believed to be shared with the physician (paternalistic) (Emanuel and Emanuel 1992). In contrast, the more mutually understanding aspect of the relationship between physician and patient is evident in the interpretive and deliberative models in which the physician is seen as counselor or advisor, and friend or teacher, respectively. Within these latter two models, the physician helps the patient to achieve a self-understanding and to develop personal values relevant to medical care choices suggesting a patient-centered, collaborative approach.

The Client-Centered Model proposed by Chewning and Sleath (1996) explicitly suggests a collaboration between patient and health care provider for purpose of medication decision-making and management[1]. This is presented in contrast to the traditional medical model typical of paternalism. This model emphasizes the patient (client) taking an active role by

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[1] Application of this model is suggested by the authors for physician-patient relations as well as for relationships between pharmacists and patients.

freely communicating preferences and concerns regarding his or her health care. Again, the provider-patient relationship is described in terms of a distribution of control and power. The relationship within the Client-Centered Model affirms the provider's sharing of power and expertise with the patient. The development of an interpersonal relationship appears to be both a necessary prerequisite and a possible result of the apportionment of control within the dyad. This interactive sharing allows, as von Gebsattel describes it, a synthesis of the personal partnership (Welie 1995).

The model of a partnership was adopted formally by the Institute of Medicine's Committee on the Future of Primary Care in 1994 (as cited in Leopold, Cooper and Clancy 1996), which redefined primary care to include the development of sustained partnerships with patients, and further explained this to be a specific responsibility of every primary care physician. This type of partnership was interpreted to represent physicians and patients actively working to agree together on goals and treatments. In addition, treating the patient as a whole person, and taking into account patient preferences and values were deemed to be vital to the partnership. The physician-patient relationship as a partnership is the most widely advocated conceptualization of the ideal in the literature, from the viewpoint of the physician (Anderson and Zimmerman 1993; Chao 1988; Leopold, Cooper and Clancy 1996; Roter 1987; Szasz and Hollender 1956).

The physician-patient relationship was investigated empirically by Anderson and Zimmerman (1993) in the context of chronic disease management. In this study, the perceptions of both members of the relationship dyad were sought. Physician questionnaires and telephone interviews of 134 male diabetic patients were used for data collection. A single

question was used to measure the type of relationship existing between each physician-patient dyad. Each physician and patient was asked whether the communication during the most recent medical visit with the other dyad member was largely determined by the physician, the patient or both equally. The last response, indicating some equality of power and mutuality of exchange, was presumed indicative of a partnership.

Thorne (1993) investigated chronically ill patients' experiences with health care through qualitative interview of patients and their families, as "naturalistic inquiry", utilizing a grounded theory approach. Based on these interviews, the relationships with health care providers were determined to be a critical part of these patients' experiences[2]. Analysis of the qualitative data resulted in the identification of three different stages through which patients' perceptions of the health care provider changed or evolved: naive trust, disenchantment and guarded alliance. Common to all stages was the concept of trust.

During the stage of naive trust, patients reported expectant passivity and belief in the health care professional being omnipotent and altruistic. Trust was absolute and of the medical system overall, being viewed as necessary for healing and helping to occur. The stage of disenchantment, for some, was entered into, often following a single event resulting in loss of trust of the provider. The last relationship stage, referred to as the guarded alliance, seemed to be "triggered by a series of insights about the situation in which...patients...found themselves" (Thorne 1993, p.90). During this stage, patients accepted responsibility for the relationship with their health care provider, focusing on the inadequacies of the professional

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[2] Here, health care provider was not specified, though at times in Thorne's discourse, physicians were the focus.

and recognizing they, as patients, had become the expert in the relationship. Within this stage of the relationship, patients interviewed reported a renewed desire to build a sincere (and not naive) trust with a particular health care provider, while recognizing his or her human limitations and failings.

This guarded alliance stage, characterized by reconstructed trust, encompassed variations on trust (Thorne 1993) suggesting differences among patients and their views of their relationship with health care providers. "Hero Worship" was evidenced by patients identifying one health care professional different from all others who was deemed worthy of absolute trust. "Consumerism" was apparent in those patients who no longer expected the provider to know them personally. The focus of these patients was away from building a relationship and toward manipulating the providers in order to strategically obtain the services desired. Last, the variation on trust termed "Team Playing" typifies the partnership model of physician-patient relations. Choosing to align themselves with "health care professionals whom they considered different from the norm" (Thorne 1993, p.101), reciprocity and negotiation was sought as the ideal for these patients. Here, relationship development was a renewed focus of their ongoing experience with chronic illness, with partnering and mutual decision-making the results of such pursuits.

Nurse-Patient Relationship

Similarities and differences exist when comparing the physician-patient relationship with that between nurse and patient. Control and responsibility are not believed to be primary issues with the nurse-patient relationship as they are with the former, as the purpose of the

relationship innately differs. Addressing the patient as a whole person and not a specific disease has been more widely promoted. Whereas this holistic perspective of caring for a patient, together with the partnership view of provider-patient relationships, only recently has been advocated by medicine, it appears to be widely practiced in nursing (Lowenburg 1994).

The caring and nurturing of patients by nurses has been researched and sought in practice in a holistic way by fostering holism, health promotion, and individual responsibility, with health care providers serving as educators and consultants (Lowenberg 1994). Within this holistic, participatory model, five dimensions of the nurse-patient relationship have been identified as a means to suggest an expanded research agenda within nursing practice research (Lowenberg 1994), but also as a source of insight into any provider-patient relationship, including that of the pharmacist. These dimensions are: affective neutrality, specificity, status differential, placebo salience and trust.

It is a decrease in affective neutrality and specificity which typifies a holistic, participatory approach to the provider-patient relationship. Spending more time, expressing emotion, having a higher degree of involvement with patients and showing more compassion are all indicators of less affective neutrality. A primary value in nursing is a "shift toward both valuing and incorporating more affective and expressive dimensions [into practice]" (Lowenberg 1994, p. 172). A warm, social and personal interaction with a commitment to emotional involvement represents this shift and is characteristic of the interpersonal exchange within a relationship between health care provider and patient.

The extent to which the relationship includes larger portions of the patient's life, indicates less specificity, and is referred to by Lowenberg (1994) as the medicalization of life-

style. Provider involvement in wider areas of the patient's life enhances the participatory relationship between provider and patient through the development of the interpersonal domain. These areas include patients' nutrition, stress levels, family relationships, feelings about work, religious beliefs and practices, and leisure activities.

The interpersonal aspect of the provider-patient relationship also is evident in the dimension of trust (Lowenberg 1994). In the traditional (allopathic) model of health care, trust is necessary for instrumental purposes only to functionally ensure patient compliance. Within the holistic model, the trust a patient has for his or her provider explicitly becomes the basis of healing. Existing in conjunction with this trust, placebo salience represents "the sacred, quasi-religious dimension in the relationship between the healer and the patient" (Lowenberg 1994, p. 177) and is evident in the emphasis of therapeutic touch and healing.

An equilibration of the status differential between patient and provider is the fifth identified dimension of the provider-patient relationship in a holistic, participatory model (Lowenberg 1994). This is similar to the collaboration of the Client Centered Model (Chewing and Sleath 1996), the mutual participation and partnership models presented by Szasz and Hollender (1956) and Roter (1987), respectively. Reciprocal interaction is encouraged within these more egalitarian approaches to provider-patient relations. It is noteworthy that while this dimension includes a control or power aspect similar to the literature about the physician-patient relationship specifically, control is not the principle issue, but only one of many. This phenomenon likely is due to the different role of nurses, when compared to physicians, in the care of patients. Similarly, the role of pharmacists, when compared to physicians and nurses is different and suggests pursuing a greater understanding

of the dimensions of the relationship between pharmacist and patient.

Pharmacist-Patient Relationship

The study and discussion of the pharmacist-patient relationship reveal trends from authoritarian paternalism to a partnership or alliance wherein interpersonal interaction is important. This section presents the commentary and conceptualizations within pharmacy pertaining to the relationship between pharmacist and patient. Also included are the studies which empirically have sought to learn more about this relationship, its components and dynamics.

Although there is a movement toward building relationships between pharmacists and patients, there is no uniformly accepted definition or description of the pharmacist-patient relationship. Some refer to the pharmacist-patient relationship as that of a mutually beneficial exchange (Strand et al. 1991), an ethical covenant (APhA Code of Ethics; Lawrence et al. 1995), and a therapeutic alliance (Berger 1993), while others suggest it has the potential to be a collaboration or partnership (Chewning and Sleath 1996).

In the conceptualization of Pharmaceutical Care as a paradigm for pharmacy practice, developing a pharmacist-patient relationship is introduced to be the first step of the process (Strand, Cipolle and Morley 1992). This relationship is described to be fundamental. Within it, the patient grants authority to the pharmacist as provider of care while the pharmacist reciprocates with his or her own professional commitment and competence. Resources needed to establish such a relationship include access to the patient, an ability to communicate with the patient, appropriate documentation systems, and a dedication to the end. With this

process model, promise-making and promise-keeping is essential.

Covenant relationships exist when two parties (i.e. the pharmacist and the patient) enter into agreement or alliance with one another and assume a position of promise-making and fulfilling. Here, exchange and mutuality is explicit. The provider promises to accept responsibility for the patient's medication-related health outcomes, and the patient promises adherence to mutually decided medication regimens and trust of the provider (Hepler and Strand 1990; Lawrence et al. 1995). Expanding this further, researchers recently proposed it is the patient's responsibility to communicate preferences and share openly all information needed by the provider of care (Chewning and Sleath 1996) in exchange for trustworthiness and competence in the service-based relationship.

The covenant model of the pharmacist-patient relationship has been contrasted with a contract model, the latter of which, when considered in a business sense, is closed-ended and external to both parties (Lawrence et al. 1995). Here, a covenant is explained to be internal, often implicit, broad-reaching and more open-ended. Employing a distinction, Lawrence and colleagues (1995) investigated pharmacists' perceptions of the relationship between pharmacists and patients. Through a mail survey, pharmacists were asked for their level of agreement to statements generated from the published literature seeking to distinguish between the contractual or covenant nature of pharmacy practice. Results of the study suggest trust to be an important element of the pharmacist-patient relationship. The researchers found mixed results of pharmacists distinguishing between covenant and contract, but suggest a covenant-based relationship should be sought by pharmacists striving to practice pharmaceutical care.

The covenant model has been used to describe a pharmacist's way of life, as a professional (Lawrence et al. 1995). It has been described as an ethical covenant in which a pharmacist may use a greater "depth and breadth of interpersonal skills" (Berger 1993, p.2399), and in which a relationship between pharmacist and patient is characterized by shared responsibility and mutually accepted goals related to treatment and drug therapy outcomes. The interpersonal nature of the pharmacist-patient relationship cannot be overlooked or underemphasized; the provision of pharmaceutical care requires greater comfort and assurance from each party that comes in the form of a more "intimate and intensive relationship" (Berger 1993, p. 2399).

Borrowed from the discipline of counseling psychology, commitment and a positive therapeutic alliance are words used by Berger (1993) to describe the relationship between pharmacist and patient. This alliance is of a personal nature and describes the collaborative and working relationship between provider and patient "based on mutual respect, liking, trust and commitment to the work of the treatment" (Berger 1993, p. 2400). Commitment to a relationship is believed to become more intrinsic as one individual values the other individual more for the unique person he or she is (Cuber and Harroff 1965). Likewise, working from the patient's perspective, a patient may become more committed to a relationship with a pharmacist as the patient grows in appreciation of who the pharmacist is as a person. This is contrasted to instrumental commitment wherein the "person bond" is weak, making the pharmacist easily replaceable in the eyes of the patient (Cuber and Harroff 1965). Thus, it is an alliance between pharmacist and patient, this personal commitment, mutual respect, trust and liking that conceptually encompasses the interpersonal domain of the pharmacist-patient

relationship to be studied.

Elaborating further on the nature of the relationship between pharmacist and patient leads to an incorporation of the aspect of caring (McCarthy 1996). To practice pharmaceutical care, McCarthy proposes the need for a one-to-one relationship in which empathy and confidential exchange of information is possible. Within this relationship, a tailoring of caring behaviors based upon patient's differing needs is suggested. Also, based on the nature of caring within this relationship, ethical principles and obligations of pharmacists' care for patients are explicitly described to include fidelity, honesty, beneficence and justice.

Summers-Hayward (1994) studied the influence of pharmacist-related interpersonal variables on the pharmacist-patient relationship. Unlike the commentaries by pharmacists and academics and the research of pharmacists' views, here, patients' perspectives explicitly were sought. Convenience sampling was conducted through physician offices wherein office nurses recruited prescription-receiving patients for the study, following certain criteria. Unique to this research was the explicit incorporation of the caring element, borrowed, in part, from the nursing literature (Watson 1988). A main focus of the study was on the affective components of the social exchanges between pharmacist and patient; the affective expressions of genuineness, caring, empathy and absence of conditionality of the pharmacist as perceived by the patient were investigated.

Based on theory and studies within nursing, a model was proposed which framed the investigation in terms of the following associations: genuineness, caring, empathy and absence of conditionality predicting patient's perceived trustworthiness and competence of the pharmacist, and pharmacist trustworthiness and competence predicting patient satisfaction,

compliance and intent to return (Summers-Hayward 1994). Existing measures from nursing, social psychology and marketing were adapted or incorporated as written into a survey questionnaire and mailed to the subjects sampled. Multiple regression analysis resulted in conclusions including those suggesting that the absence of conditionality (patient's belief that the pharmacist is nonjudgmental) is predictive of patients' perceived trustworthiness and competence of the pharmacist.

Utilizing a service marketing model developed by Crosby and colleagues (1990), Worley (1996) also studied the pharmacist-patient relationship from the perspective of the patient. The associations between the quality of the relationship and other model variables were investigated through mail survey of a probabilistic sample of household heads throughout the U.S. Respondents were asked to answer the survey in relation to the pharmacist who usually fills their prescriptions. Findings from the structural equation modeling suggest patients' trust of and satisfaction with their pharmacist, named Relationship Quality, (Crosby et al.1990; Worley 1996) lead to patient commitment to the pharmacist, and that the intensity of contact with the pharmacist leads to Relationship Quality.

In studying the relationships between pharmacists and patients, it is apparent that the interpersonal communication or social exchanges that occur during service interactions are crucial to consider. While many studies in pharmacy have investigated this communication between pharmacists and patients, one major focus has been on the form or content of that communication within the context of one service encounter (Schommer 1996; Sleath 1996). Other researchers have studied prescription dispensing encounter-driven pharmacist-patient relations occurring in community pharmacy settings (Summers-Hayward 1994; Worley 1996)

with an understanding of patients' perceptions of these encounters reflecting the pharmacist-patient relationship In this investigation, the relationship between pharmacist and patient explicitly is understood to be an ongoing phenomenon developing over time through repeated service encounters. It considers evaluation of the one-on-one communication between pharmacists and patients, but in terms of process and interpretation of personal meaning of the exchanges, meaning that evolves over time. Though it is not a longitudinal study, this evolved meaning is believed to be dependent on the continual exchanges between pharmacist and patient that contribute to relationship development.

Theoretical Framework

Based on Social Exchange Theory, within every relationship there is exchange (Blau 1964). Whether material in nature, informational or affection-laden, exchange between individuals is a well-accepted basis for relationship development. Relationships are built on this exchange as each individual attempts to maintain some type of equity of exchange within the relationship. It is understood that it is through social transactions that the interpersonal structures of relationships are managed (Huston and Burgess 1979). A fundamental basis of exchange in interpersonal relationships is the norm of reciprocity (Huston and Burgess 1979). The relationship between pharmacist and patient, albeit of a different nature than a typically studied social relationship, is believed to exist within a framework of social exchanges, assuming this norm of reciprocity.

Social Exchange and the Norm of Reciprocity

In examining exchange and reciprocity between two individuals, one may consider several types of reciprocity existing along a continuum (Sahlins 1972). The first type is a balanced reciprocity in which direct exchange is observed from both individuals in the dyad. This is common in a more economic exchange model wherein money is exchanged for goods and services. Socially, a balanced reciprocity may be observed between two parties concurrently exchanging gifts of equal value. With negative reciprocity, there is an emphasis on "getting something for nothing" wherein transactions are made in the attempt to gain a utilitarian advantage (e.g. barter or theft). The last type of reciprocity is a generalized reciprocity. Here one party gives "gifts" while expecting little in return at that moment in time.

The pharmacist-patient relationship may develop as a series of exchanges from pharmacist to patient wherein a pharmacist may give of one's self, as a "gift" within a presumed generalized reciprocity. As an example, Social Exchange Theory applied to a gift-giving paradigm accepts as its basis the continual, staggered exchange that is not explicitly reciprocal (Belk and Coon 1993). It is this continuance of exchanges between individuals which builds a relationship. Within this model, reciprocity is not insisted nor required to be balanced, as is true in a purely economic exchange model, but rather generalized and symbolic. Exchange partners are seen as a part of the extended self and social debt is welcomed (Belk and Coon 1993). Reciprocal exchange may be anticipated, but not deemed necessary at the time of one party's exchange with another. It is within this generalized model, that the pharmacist-patient relationship is theorized.

Exchanges between the pharmacist as service provider and the patient as service recipient are intuitively unbalanced. One may postulate the patient is potentially lacking the ability to reciprocate (unless economically). Another may note the implicit or explicit imbalance of power within a service provider-client relationship (Szasz and Hollender 1956; Roter 1987; Thorne 1993) due to the legitimate power that is present in the health care professional status of the service provider. Despite the inherent differences in power, the movement toward more patient-centered care in pharmacy suggests studying the pharmacist-patient relationship within a model of social exchange wherein a norm of reciprocity applies. Here, social exchange may include abstract, intangible expressions of caring and gratitude, as well as more concrete exchanges of service provision and expressed appreciation and thankfulness through gift-giving (Foa and Foa 1980).

From a counseling perspective, Berger (1993) states that a truly comfortable relationship, from a patient's perspective, cannot arise unless the pharmacist is able to create a unidirectional, nonreciprocal relationship. Different from this viewpoint is the application of Social Exchange Theory wherein social exchange and reciprocity is understood to be imperative to pharmacist-patient relationship development (Doucette 1994). It is believed that one must consider the desires and varying potential ability of the patient to reciprocate to fully study the interpersonal domain of the pharmacist-patient relationship within this model.

With reciprocity as a basic assumption of relationship building within Social Exchange Theory, inequity in a relationship will result in distress and attempts will be made to rectify this (Blau 1964). Although the pharmacist-patient relationship is a unique type of social relationship that is innately unbalanced, a patient's realization of a state of exchange-based

inequality may create discomfort for the patient. This discomfort or feeling of indebtedness may be manifested as a desire or felt need to reciprocate to the pharmacist (Greenberg 1980; Williams 1995).

Indebtedness Theory

Indebtedness is defined as "a state of obligation to repay another" (Greenberg 1980, p. 4) and is assumed to involve both affective and cognitive components that act as conscious motivators. Indebtedness Theory predicts that the recipient of an exchange will search for opportunities to reciprocate to reduce the discomfort created by the imbalance present in the relationship (Greenberg 1980). It is speculated that due to a socialized norm of reciprocity, individuals may associate indebtedness with loss of status or power in relation to the donor party, expected costs of repayment, and restrictions on their own freedoms within the relationship. This loss of power may be more pronounced within the relationship building between health care provider and patient, wherein a power imbalance exists already. Because of an apparent inability of a patient to reciprocate with a pharmacist, the patient may feel indebted to the pharmacist. Reciprocation is proposed to be accomplished or attempted via different routes. Varying conditions are believed to exist that affect the mode of reciprocity used (Greenberg 1980), such as one's perception of an opportunity to reciprocate or the presence of a third person creating an opportunity for reciprocation (Williams 1995).

How may a professional, yet personal relationship be formed between pharmacist and patient if exchange is not completed through reciprocity? Is it reasonable to consider the potential reciprocal exchange from patient to pharmacist as an attempt to reduce indebtedness

within a health care environment in which the patient is explicitly being served? Researchers agree reciprocity in social exchange can be accomplished, in part, through self-disclosure (Berg and Derlega 1987). Within the paradigm of pharmaceutical care, patients' entrusting of and submission to the health care provider is viewed as reciprocating in the exchange (Strand et al. 1991). Within the Client Centered Model of collaborative medication decision making and management (Chewning and Sleath 1996), giving on the part of the patient may involve, in part, a patient sharing preferences and personal information as well as abiding to mutually decided responsibilities and communal expectations of both the provider and patient.

Other types of reciprocity also may be present within the pharmacist-patient relationship. Anecdotal reports of pharmacist-patient interactions and relationships suggest some patients consciously want to reciprocate differently, and that they search for opportunities to do so to maintain or build upon the existing relationship with their pharmacist[3]. The exchanges described are consistent with Resource Theory which proposes relationship development encompasses multiple exchanges of various resources varying in their degree of concreteness and symbolism including: love, services, goods, money, information, and status (Foa and Foa 1980). Based on these anecdotal reports, possible avenues of patient reciprocation may lie in communicated gratefulness, gifts or tokens of appreciation, and award nominations. Offers to serve the pharmacist or host the pharmacist socially if the opportunity ever arose and expressed willingness to share their lives outside the context of service provision all provide further evidence of this desired reciprocity.

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[3] Anecdotal reports are based on the early interviews of this study wherein qualitative data were sought to understand the pharmacist-patient relationship.

Factors Inherent to and Affecting Relationships

According to Social Exchange Theory, the development of a relationship "can be examined in terms of the biological and psychological characteristics of the partners, the nature of the partners' social network, the larger cultural context within which the relationship is embedded, and the history of the partners' interactions with one another" (Huston and Burgess 1980, p.5). The relationship between pharmacists, as health care providers, and patients may vary from individual to individual and circumstance to circumstance, based on these characteristics and contexts. Investigation into this relationship should include some of these factors deemed to be influential.

Factors unique to individual patients and their pharmacists, from the patient's perspective are considered in this study. Following along Social Exchange Theory, patients' willingness to collaborate with the pharmacist and patients' felt need to reciprocate with the pharmacist may help to measure the extent or type of the relationship between pharmacist and patient (Chewing and Sleath 1996; Greenberg 1980). Patients' evaluations of the affective-laden interpersonal qualities of the pharmacist may be indicative of the psychological characteristics of the pharmacist as well as the nature of the social exchange between pharmacist and patient and the history of their interactions (Summers-Hayward 1994).

Specific to the nature of the relationship, and relative to the biological and psychological characteristics of the patient, is that patient's own perception of the care provided by the pharmacist and its association with the patient's beliefs about their medication use and related illness(es). It has been speculated that a patient's illness has an effect on the way in which a physician interacts with the patient (Leopold, Cooper and Clancy 1996). Also, there is some

empirical evidence that a patient's own interpretation and experience of an illness relates to the extent of an active role he or she assumes during a physician office visit (Brody et al. 1989). Thorne (1993) concluded, through interviewing patients, that the dependent nature of patients' chronic illness may influence the development of patients' relationships with their health care providers. Likewise, this relationship between a patient's beliefs about their illness and related medication use are thought to relate to the interpersonal interactions and resulting relationship between a patient and his or her pharmacist. In studying the pharmacist-patient relationship, it therefore is deemed helpful to investigate what patients believe about their medication use as it pertains to the services received from the pharmacist. In the case of this study, patients' beliefs about the severity of and their susceptibility towards the prescription drug, warfarin are sought as they relate to the warfarin management and monitoring service provided by their pharmacists in an anticoagulation clinic setting.

The occurrence (and patient recall and report) of a critical, or memorable incident of an interpersonal nature between a pharmacist and a patient is proposed to be an influencer of the relationship between the two. Critical incidents and the related data gathering technique (Flanagan 1954) have been used in areas of service marketing (Bitner, Booms and Tetreault 1990) and nursing education (Norman et al. 1992) to document significant occurrences between a service provider and recipient. The technique is believed to provide a holistic approach to the recording of human behavior within a specified context (Walker and Truly 1992). Similarly, patients' discrete reports of health care encounters have been concluded to be more helpful than global measures of patient satisfaction in determining patient experiences related to relationships with health care providers (Delbanco 1992). A content analysis of

critical incidents, solicited as most memorable experiences in recent health care provision, revealed nearly half (46.7%) of all critical incidents were of an interpersonal nature, being communication- or relationship-based (Ruben 1993). It is proposed that these interpersonal critical incidents may help to document the history of the interactions between the pharmacist and patient. Also, it is proposed that incidents perceived in a positive way by the patient would foster relationship growth. Therefore, patients' self-report of pharmacist-based positive critical incidents are sought in this study.

The interpersonal domain of the pharmacist-patient relationship is investigated within a framework of Social Exchange Theory. It is proposed, in this research, that the norm of reciprocity holds for the relationship that develops between the pharmacist and patient. It is assumed that this need for reciprocity may result in feelings of indebtedness within the relationship between a pharmacist and a patient. Patients' willingness to partner or collaborate with their pharmacist, as well as patients' feelings of indebtedness are measured as indicators of relationship development. Patients' evaluations of the interpersonal relationship quality of the pharmacist (to include dimensions of trust, caring and respect), patients' self-report of a critical incident between themselves and the pharmacist, and patients' beliefs about service-specific medication use are measured as constructs addressing elements pertinent to the pharmacist-patient relationship. In the following chapter, research hypotheses and a proposed model of the study constructs and their associations to one another are presented.

3. HYPOTHESES

In this study, patients' perceptions of the relationship with their pharmacist and associated beliefs and experiences are sought. The main concepts in this study to be tested in the hypotheses are the associations among the following constructs: the patient's perception of the Interpersonal Relationship Quality of the pharmacist in relation to self, patient's report of a positive critical incident of an interpersonal nature between the patient and the pharmacist, patient's beliefs about his or her medication use specific to the pharmacist's service and two different measures of the patient's response to the pharmacist-patient relationship working within a Social Exchange Model: Felt Indebtedness and Collaborative Willingness. Refer to Chapter 4, Methods for operational definitions of each construct. The proposed hypotheses are based on a generalized reciprocity, due to the implicit imbalance of exchange of the service provider-client relationship.

To begin to address possible relationships, the following question is asked: What might be associated with the social exchange between the pharmacist and the patient and its generalized reciprocity? Both a patient's Felt Indebtedness and Collaborative Willingness may be indicative of this exchange and the potential imbalance, as both represent patients' possible responses to the interpersonal exchange of the pharmacist as service provider. Indebtedness Theory posits that the greater the magnitude of indebtedness perceived by the recipient of exchange, the greater that recipient will feel the need to reciprocate (Greenberg 1980). What might influence the magnitude of perceived indebtedness by a patient for his or her pharmacist in a medication management (service) context?

A patient's evaluations of the interpersonal qualities of a pharmacist evident within social exchange may have an impact on patients' perceived indebtedness toward the pharmacist and the resulting desire or intent to reciprocate. A patient who perceives the pharmacist as trustworthy, caring and respectful may interpret these interpersonal qualities as they relate to him or herself as an impetus for reciprocation due to the perception of higher quality (greater magnitude) of exchange by the pharmacist (Greenberg 1980). The first hypothesis to be tested is therefore:

H1: A patient's experience of Felt Indebtedness toward a pharmacist is positively associated with that patient's perception of the pharmacist's Interpersonal Relationship Quality.

Another variable that may affect a patient's perceived magnitude of indebtedness is the occurrence of a memorable, interpersonal event (Critical Interpersonal Incident) between the pharmacist and patient. It is proposed that such critical incidents in health care, if perceived positively by the patient, help to build a stronger relationship between patient and provider. The directional condition (positive) refers to some apparent positive response (e.g. appreciation, happiness) or outcome (e.g. better comprehension) as perceived by the patient. The self-report of such positive Critical Interpersonal Incidents may provide helpful insight into patient's experiences within a pharmacist-patient relationship. Self-report of memorable interpersonal incidents can be understood to be of a greater magnitude than other incidents because of the memorability. Following Indebtedness Theory (Greenberg 1980), these

incidents that result in a positive experience may be associated with stronger feelings of gratitude and indebtedness.

H2: A patient's experience of Felt Indebtedness toward a pharmacist is positively associated with that patient's report of a positive Critical Interpersonal Incident with the pharmacist.

Helping patients to properly use and manage medications is a prominent service provided by pharmacists, and the pretense of outpatient pharmacist-staffed clinics. A theoretical proposition regarding human exchange, states that "the greater the person's need for help, the more valuable help becomes and the more thanks he will give when he receives it" (Shaw and Costanzo 1970, p. 77). One way patients perceive their medications and related illness can be understood in terms of susceptibility and severity (Becker and Maiman 1975). Greater beliefs of susceptibility to and severity of medication use and its related illness may create a greater perceived need for the medication management services offered by a pharmacist. It is posited that this greater need for help with medication management could influence or be associated with greater feelings of indebtedness toward the health care provider who serves patients in this way (the pharmacist).

H3: A patient's experience of Felt Indebtedness toward a pharmacist is positively associated with that patient's belief of his or her susceptibility to and the severity of medication use specific to the pharmacist's services.

Interpersonal relationships depend a great deal on one person's perceptions of the actions of another. A review of research conducted in the area of physician-patient relational communication reveals patients "overwhelmingly respond positively to physicians who respond to them in ways characteristic of interpersonal relationships" (Street and Wiemann 1988, p. 421). Positive feelings about another are likely to increase a person's interaction with and affect the quality of the interaction with that 'other' (Shaw and Costanzo 1970). People believe it is appropriate to disclose information about themselves to others whom they like (Bochner 1982). Therefore, patients' motivations for the social exchange that ensues during pharmacist-patient service encounters are proposed to relate to the interpersonal relationship that can develop between this provider and patient.

The extent to which patients express their concerns to health care providers through self-disclosing and resultant collaboration is believed to be linked strongly to how the health care provider exhibits partnership building behaviors such as the solicitation of patients' feelings, opinions and questions, or the fostering of social conversation (Leopold, Cooper and Clancy 1996). Thus, patients' disclosure of information about themselves and their needs related to the service provided by a pharmacist (here referred to as a patient's Collaborative Willingness) may be the result of a positive perception of the interpersonal qualities of the pharmacist. Also, because relationships are built on exchanges, it is believed that the occurrence of a positive, exchange-based critical incident between a pharmacist and patient indicative of partnership or interpersonal relationship building behaviors will have a positive effect on that patient's willingness to work with and disclose to that pharmacist.

H4: A patient's willingness to collaborate with a pharmacist is positively associated with that patient's perception of the pharmacist's Interpersonal Relationship Quality.

H5: A patient's willingness to collaborate with the pharmacist is positively associated with that patient's report of a positive Critical Interpersonal Incident with the pharmacist.

One indication of patient's own beliefs about their medications and illness is the extent to which patients express their concerns about related problems. The ways in which patients express health concerns has been shown to strongly relate to how physicians solicit patient's opinions, feelings and questions (Beckman, Frankel and Darnley 1984; Street 1992). Researchers in social psychology have shown an individual's self-conceptions (self-attributed traits or behaviors) can inhibit and facilitate certain behavioral intentions (e.g. Triandis 1977). Also, situational variables are believed to significantly affect an individual's willingness to reveal personal information to another (Cozby 1979). Brody et al. (1989) surveyed patients about their perceptions of the roles they played during a medical visit and their self-report of illness-related factors (e.g. discomfort, dysfunction). Patients' roles were categorized as either passive or active based on self-rating of decision-making during the interaction with the physician. Some differences were found between active and passive patients and their discomfort, dysfunction and symptom ratings. A possible association between the patients' role in sharing information with the provider and their own perceptions of or beliefs about their illness and related therapies is suggested. This phenomenon is proposed to exist between the patient and pharmacist wherein patients who have stronger beliefs about their medication's

severity and their own susceptibility to it are more motivated to be an active participant with the pharmacist.

H6: A patient's willingness to collaborate with a pharmacist is positively associated with that patient's belief in his or her own susceptibility to and the severity of medication use specific to that pharmacist's services.

Arguments have been made that a patient's state of illness or health status has an effect on a health care provider's communication-based interaction with that patient, and thus the resulting provider-patient relationship (Leopold, Cooper and Clancy 1996). Researchers have posited that physicians may take a more patient-centered approach in interacting with chronically ill patients (when compared to acutely ill patients) due to the former having a greater likelihood of playing an active role in disease management (Reeder 1972; Szasz and Hollender 1956). Some researchers of the physician-patient relationship have imply or suggest that the patient is the expert of his or her own medical problem (Chewning and Sleath 1996; Roter and Hall 1992), and that a physician's approach to a patient's medical problem is grounded in the patient's (the expert's) own perspective and perception of it (Brody 1992).

Although researchers suggest actual illness may influence communication and relationship development between provider and patient (Leopold, Cooper and Clancy 1996), patient's own beliefs about their illness and related therapies may relate significantly to interpersonal relationship development as well. It is posited that a pharmacist's interaction with a patient may be influenced by a patient's beliefs about his or her illness as well.

However, in the case of pharmacists, because their interaction with patients relates more directly to illness-driven medication use and management than physicians, patients' beliefs about their medications may be associated with the approach pharmacists take in communicating and working with them. This difference in interaction during repeated service encounters with the pharmacist could result in the patient developing perceptions of the pharmacist's interpersonal qualities different from patients with differing medication beliefs. Thus, patient perceptions of the Interpersonal Relationship Quality of the provider is believed to relate to patient's beliefs about their susceptibility to and the severity of the medication that is the focus of the pharmacist's services.

H7: A patient's perception of a pharmacist's Interpersonal Relationship Quality is positively associated with that patient's belief in his or her own susceptibility to and the severity of medication use specific to that pharmacist's services.

Patient remembrance of and subsequent report of a Critical Interpersonal Incident with a pharmacist is believed to be an indicator of an exchange-based experience capable of having a significant impact on a relationship. In an exploratory manner, sharing this type of interpersonal experience is believed to affect patients' perception of that pharmacist. Self-report of a positively-valenced, memorable incident with the pharmacist is proposed to lead to more positive perceptions of that pharmacist's Interpersonal Relationship Quality.

H8: A patient's perception of a pharmacist's Interpersonal Relationship Quality is

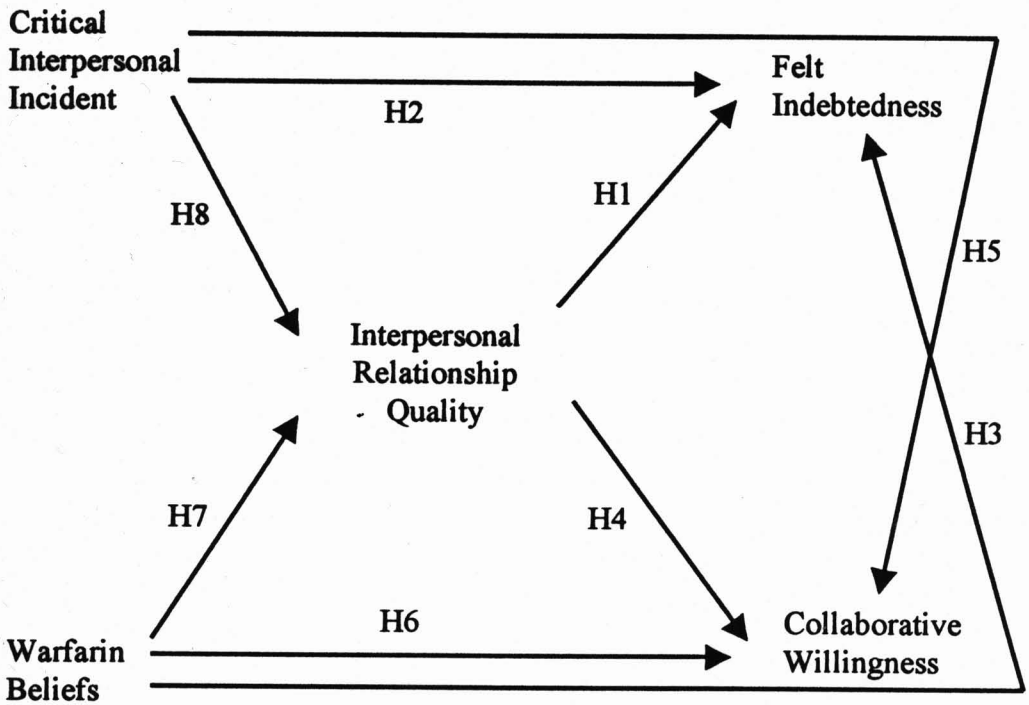
positively associated with that patient's report of a positive Critical Interpersonal Incident with the pharmacist.

Table 1 summarizes the eight study hypotheses to be tested. Figure 1 shows the proposed relationships to be tested.

TABLE 1- Summary of Study Hypotheses

Hypothesized relationships between study constructs	
H1:	A patient's experience of Felt Indebtedness toward a pharmacist is positively associated with that patient's perception of the pharmacist's Interpersonal Relationship Quality.
H2:	A patient's experience of Felt Indebtedness toward a pharmacist is positively associated with that patient's report of a positive Critical Interpersonal Incident with the pharmacist.
H3:	A patient's experience of Felt Indebtedness toward a pharmacist is positively associated with that patient's belief in his or her own susceptibility to and the severity of medication use specific to the pharmacist's services.
H4:	A patient's willingness to collaborate with a pharmacist is positively associated with that patient's perception of the pharmacist's Interpersonal Relationship Quality.
H5:	A patient's willingness to collaborate with the pharmacist is positively associated with that patient's report of a positive Critical Interpersonal Incident with the pharmacist.
H6:	A patient's willingness to collaborate with a pharmacist is positively associated with that patient's belief in his or her own susceptibility to and the severity of medication use specific to that pharmacist's services.
H7:	A patient's perception of a pharmacist's Interpersonal Relationship Quality is positively associated with that patient's belief in his or her own susceptibility to and the severity of medication use specific to that pharmacist's services.
H8:	A patient's perception of a pharmacist's Interpersonal Relationship Quality is positively associated with that patient's report of a positive Critical Interpersonal Incident with the pharmacist.

FIGURE 1 - Proposed Model to Test Study Hypotheses



4. METHODS

In this chapter I present the methods used in this exploratory investigation into the pharmacist-patient relationship. The study is cross-sectional, descriptive, and non-experimental. I explored the pharmacist-patient relationship in the field, through semi-structured interviews with and through mail survey to patients enrolled at two pharmacist-staffed outpatient clinics. Insight learned from interviews was applied to both the conceptualization of several study constructs believed to be descriptive of the pharmacist-patient relationship, and to related measure development. In addition to interviews, a review of the literature guided the conception and development of construct measures.

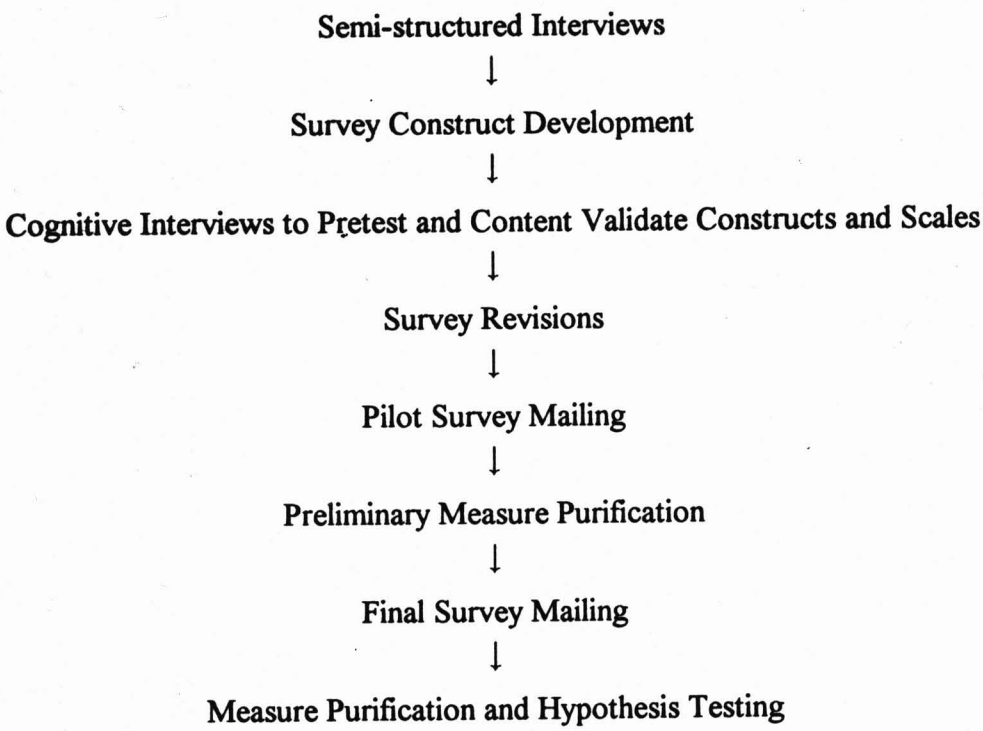
The chapter includes a detailed description of the study phases, including the patient interviews, survey (questionnaire) development, on-site pretesting interviews, pilot mailing and final mailing of the survey for data collection and analysis. Refer to Figure 2 for a flow chart of the study phases as they occurred. Within this description (1) the study constructs are defined and their measurement development is explained, (2) the study population and sampling procedures are described, and (3) the data collection procedures and plan for data analysis are explained. All phases of the research was approved by the University of Wisconsin Human Subjects Committee. See Appendix H for a copy of the approval.

THE INTERVIEWS

The interviews were conducted on site at two pharmacist-staffed, outpatient anticoagulation clinics, with clinic enrolled patients. Two different types of interviews were

conducted for this study: semi-structured exploratory (n=13, Clinic A) and cognitive for content validation (n=11, Clinics A and B). In this section the first set of interviews are described and in the section entitled Measurement Development the second set of interviews is discussed.

FIGURE 2 - Study Phases



Thirteen semi-structured, exploratory interviews were conducted with patients enrolled in Clinic A to obtain usable information about patient perceptions and descriptions indicative of the interpersonal nature of the pharmacist-patient relationship. Goals of these interviews were: (1) to discern the different dimensions of the interpersonal domain of the service provided by the pharmacists, (2) to learn what perceptions the patients have of, and what

words they use to describe, the interpersonal nature of the services and the pharmacists at the clinic, and (3) to explore the concept of a critical incident potentially influencing patients' perceptions of the service experience with the pharmacists. (See Appendix B for the semi-structured interview format.) These interviews ranged in length of time from 20 to 45 minutes. Two were audio-tape recorded to supplement note taking efforts (recordings were approved late in the interviewing phase by the Human Subjects Committee through a Change of Protocol). None were transcribed. Detailed handwritten notes were taken during the interviews. Each interview was followed by interviewer reflection and journaling.

Patients' responses to questions and expanded story-telling of their service experiences at the clinic resulted in the identification of repeating themes. Those themes include the following: feelings of indebtedness toward the pharmacist and wanting to give something in return to the pharmacist who serves them. Positive affective dimensions (those deemed to be admirable by patients) indicative of the interpersonal exchange exhibited by the pharmacists also were identified through interview. These included trustworthiness, respectfulness and genuine caring for the patients. Differences in patients' perceptions of the severity of and susceptibility to their illness and the related need for warfarin also were noted (See Appendix G).

The thematic outcome of these interviews and a review of the literature resulted in Social Exchange Theory being adopted and applied as the theoretical framework to this study (See Chapter 2, Literature Review). Operating within the elements of this theory and the information learned through the patient interviews, constructs believed to be descriptive of the pharmacist-patient relationship were identified. Measures to evaluate these constructs then

were developed and the preliminary survey questionnaire was designed, incorporating the measurements.

STUDY CONSTRUCTS

The constructs in this study, measured all from the patient's perspective, are: the Interpersonal Relationship Quality of the pharmacist, Felt Indebtedness, Collaborative Willingness, Warfarin Beliefs, and self-report of Critical Interpersonal Incident. All constructs except for the critical incidents were measured with multi-item measures to improve measurement reliability (Nunnally and Bernstein 1994).

The majority of items were developed as a result of the semi-structured interviews and preliminary cognitive interviewing. Statements made by patients interviewed were incorporated into these items. Though not written verbatim, items were written to incorporate the sentiments shared by interviewed subjects. In addition, ideas for items were generated based on insight gleaned from the literature available on provider-patient relationships and relationship theory in general, as well as from researcher practice-based experience. All items ultimately were developed and written for the purpose of this exploratory study.

Interpersonal Relationship Quality

I sought to descriptively measure the interpersonal nature of the pharmacist-patient relationship in terms of patients' overall perceptions of the pharmacist and of the service-related interpersonal exchanges between patient and pharmacist that build a relationship over

time. Evaluation of these exchanges are intended to include impressions of verbal and non-verbal communications experienced by the patient during service-based interpersonal exchanges with the pharmacist. The construct conceived to capture this is Interpersonal Relationship Quality (IRQ). It will be defined as a patient's perception of the quality of a pharmacist's interpersonal exchanges with that patient. The Interpersonal Relationship Quality dimensions included in the operationalization of this construct are the pharmacist's genuine caring, trustworthiness and respectfulness.

In recent studies, Relationship Quality (Crosby et al. 1990; Worley 1996) was operationalized as a patient's satisfaction with and trust of a pharmacist. Satisfaction with the pharmacist is suggested to be strongly related to the pharmacist's caring **for** the patient, not just **about** the patient (Gouveia 1993; McCarthy 1996). Interviewed patients expressed appreciation of feeling cared for by their pharmacist. Some patients voluntarily reported occasions during which their pharmacist went above and beyond that which was expected of them, creating a remarkable feeling of being cared for. Others attempted to describe how they have come to feel cared for by their pharmacist by stating their pharmacist has "personal concern for", "takes care of" and "gets tough on" them for their benefit.

Trust has been defined as the confident belief that the pharmacist can be relied on to act in a manner consistent with the long term interest of the patient (Crosby et al. 1990; Worley 1996). Within health care, the human qualities of respect, concern and humility are seen as the foundation for trust and trustworthiness (Thorne 1993). Similarly, Mechanic (1996) has conceptualized interpersonal trust in health care as building on a patient's experience of competent, caring and responsible responses by a physician. Trust also was an element of the

pharmacist-patient relationship discerned through interviews. A pharmacist's trustworthiness was both explicitly stated (e.g. "I trust ...[the pharmacist] with my life") and implicitly expressed (e.g. "[the pharmacist] is always there to tell you like it is").

In addition to caring and trustworthiness responses perceived by patients, interviewed patients described their feelings of being respected by the pharmacist. This respectfulness of the pharmacist for the patient, is believed to be an element of the Interpersonal Relationship Quality of the pharmacist. This was apparent in patients' comments indicating their pharmacist to be "a good support person" who "does not treat [the patient] like a slab of meat" and who "takes time to answer [the patient's] questions". Other statements made by patients indirectly indicate this feeling of being respected by the pharmacist refer to the pharmacist "getting to the source [to] find out what is going on" and "always [being] there to tell [the patient] the right way...not experiment[ing] with things". Respectfulness and being taken seriously is apparent in another statement made by a patient who asserted that with the pharmacist he sees, he is "not being played to, or played around with".

Having respect for patients is strongly advocated by the pharmacy profession. The 1994 APhA Code of Ethics for Pharmacists advocates that a pharmacist "respect the autonomy and dignity of each patient". The collaboration between a pharmacist and a patient regarding therapeutic monitoring and management identified in the Client-Centered Model implies the pharmacist respect the patient. The pharmacist's (or health care provider's) role is described to be one in which the decision process is "influenced by the client's desires and abilities" (Chewning and Sleath 1996, p.390). Proposed models of medical and nursing practice that advocate collaborative partnerships with patients (e.g. Lowenberg 1994; Roter 1987; Szasz

and Hollender 1956; Welie 1995) all imply an inherent respectfulness of the health care provider for the patient. In a study by Thorne (1993), one of the most valued qualities in health care relationships was found to be the respect held by the health care provider for the patient as a unique individual. Integral to this respect was "being believed by the [health care] professional" (Thorne 1993, p. 110).

Thus, a pharmacist's Interpersonal Relationship Quality is understood to consist of multiple, possibly overlapping dimensions. In this study IRQ is measured using 21 items intended to capture patients' perceptions of the caring, trustworthiness and respectfulness of their pharmacist in relation to themselves. The items developed to measure these qualities of the pharmacist, are listed in Table 2 and are included in Appendix A.

TABLE 2 - Items Used to Measure Interpersonal Relationship Quality

how easy she is to talk to	how she takes time to explain things to you
how she has your best interest in mind	how patient she is with you
how she allows you to be yourself with her	how relaxed she makes you feel
how sincere she is	how she shows concern for you
how trustworthy she is	how she respects you as a person
how complete she is in addressing your concerns	how she listens to what you have to say
how she asks if you have any questions	how she tries to understand your feelings
how she trusts you in making decisions about your health	how comfortable she makes you feel sharing your deepest concerns with her
how she believes what you say	how she respects what you say
how she explains what is happening	how special she makes you feel
how she puts your best interest first	

Collaborative Willingness

The extent to which a patient interacts with a pharmacist in terms of social exchange is another means by which to document the pharmacist-patient relationship from the patient perspective. Without the direct measurement of an individual's behavior, self-report of behaviors act as a proxy. Borrowing in part from the conceptualizing done on the role of self disclosure in development of relationships (e.g. Jourard 1964) and on the concept of shared power between client and provider in medication management (Chewning and Sleath 1996), Collaborative Willingness (CW) is a construct considered in this study. Collaborative Willingness is intended to capture a patient's willingness both to participate actively through social exchanges with and to disclose certain types of information about his or herself to the pharmacist. It is defined here as a patient's likelihood to engage in the social exchange and self disclosure activities indicative of a collaborative relationship with a pharmacist. Eight items were included in the survey to measure a patient's Collaborative Willingness. They are listed in Table 3.

TABLE 3 - Items Used to Measure Collaborative Willingness

talk to the pharmacist when you are bothered by your warfarin	ask for help from the pharmacist when you need it
talk to the pharmacist when you are bothered by other health concerns	ask the pharmacist when you have a question
talk about things other than your health with the pharmacist	talk to the pharmacist when you are unhappy with your warfarin
admit to the pharmacist when you forget to take your warfarin	tell the pharmacist when you don't agree with her

Felt Indebtedness

In this study, reciprocity is proposed to be a norm of the pharmacist-patient relationship based on Social Exchange Theory. The feeling of indebtedness is believed to be a result of this norm wherein a member of the exchange (relationship) dyad is unable to reciprocate. Based upon Indebtedness Theory, indebtedness is "a state of obligation to repay another" (Greenberg 1980, p.4). This state of obligation consists of affective and cognitive components. For the sake of distinguishing actual indebtedness from that which is perceived by an individual, the variable of Felt Indebtedness (FI) will be used. It is defined in this study as the state of thinking and/or feeling on the part of the patient that there is a need to reciprocate in some manner to the pharmacist.

In support of the norm of reciprocity, some interviewed patients expressed unsolicited feelings of indebtedness. Statements indicated this need to reciprocate and the feelings of owing the pharmacist include anecdotal reports of patients' giving gifts to their pharmacist (e.g. cards, candy) and collector items to pass along to the spouse of the pharmacist. One patient expressed the desire to publicly acknowledge the pharmacist for the level of care provided to patients, suggesting a desire to exchange a "status" resource (Foa and Foa 1980). Some interviewees indicated concerns of not being capable of repaying their pharmacist (monetary payment is not made, nor expected by the pharmacists of the clinic), while others explained how nonmaterial expressions of appreciation are given to their pharmacist, but that they are "not enough".

With the intent of capturing a patient's felt need to reciprocate in some way to the pharmacist, three items were included to measure Felt Indebtedness. The questions are: how

often the patient feels like s/he owes the pharmacist, wants to repay the pharmacist in some way, and wants to thank the pharmacist.

Warfarin Beliefs

The pharmacist-patient relationship may be studied by examining the psychological and biological characteristics of the patient (Ridley and Avery 1979). Although this is suggested in the investigation into general interpersonal relationships (that is, outside of health care or any service industry), the psychological and biological characteristics of patients as they relate to the health care received seems especially relevant to consider when investigating the relationship between a service provider and client built on satisfying illness-related needs. An individual's beliefs about his or her medication use related to the need for and use of the services provided by a pharmacist therefore are included in this study.

The conceptualization of a construct pertaining to patients' beliefs about their medication (in this study, the designated medication is warfarin due to the clinic setting chosen) borrows from the Health Belief Model which proposes patients' perceived susceptibility and severity of illness may affect patients' health-related behaviors (Becker and Maiman 1975). The study construct that is called Warfarin Beliefs (WB) will be defined as an individual's beliefs about the severity of warfarin and his or her susceptibility to the need for and use of warfarin. To measure both severity and susceptibility, eight items were developed (See Table 4).

TABLE 4 - Items Used to Measure Warfarin Beliefs

my need for warfarin is a serious matter	warfarin helps to prevent life-threatening problems for me
it is critical for me to keep taking warfarin	taking warfarin can cause problems for me
without warfarin, I will get a blood clot	I think about my need to take warfarin more than other health concerns
warfarin is important to my health	I will always need to take warfarin

Critical Interpersonal Incident

The study of critical incidents was first introduced by Flanagan (1954) when he developed the Critical Incidents Technique (CIT) to evaluate performance and the occurrence of critical incidents. The technique uses detailed reports of critical incidents to record human behavior within a specified context (Walker and Truly 1992). This collection of qualitative, descriptive data is helpful to study the occurrence of critical incidents and provides for a holistic approach to study personal experiences.

Critical Incidents have been referred to as either highly satisfactory or dissatisfactory service encounters within marketing (Bitner, Booms and Tetreault 1990) and as memorable positive and negative experiences in health care (Ruben 1993). In Ruben's study (1993), a content analysis of the 1,125 critical incidents obtained resulted in almost half being classified as interpersonal. Interpersonal was defined in this study to include aspects of the subjects' inpatient or outpatient health care that related to personal treatment and/or interpersonal communication. The related construct sought in this study is that of patient report of a Critical Interpersonal Incident. Critical Interpersonal Incident (CII) will be defined as a

memorable exchange-based experience (of an interpersonal nature), occurring between a clinic pharmacist and clinic patient. It will be measured by asking one open-ended question. Only those Critical Interpersonal Incidents that reveal or suggest a positive outcome or favorable result will be included in the testing of the proposed model because of the proposed valence of the hypotheses.

DEVELOPMENT OF SURVEY CONTENT

With operational definitions of study constructs established, items written to measure each construct were incorporated into the survey instrument. Additional questions not necessary to test the formal hypotheses of the study also were included for future consideration of the data set. The latter questions include those asking the age and gender of the patients surveyed, two demographic variables found to relate to the extent of communication between pharmacists and patients in community outpatient settings (Schommer and Wiederholt 1997). Also, patient's clinical indication for anticoagulation (warfarin use) was collected as it is believed to be an important piece of information for future comparison between it and patients' Warfarin Beliefs.

Questions pertaining to the patient contact with clinic pharmacists were sought for future consideration. The length of patients' clinic enrollment was asked using a categorical variable wherein respondents are asked to check a time category (less than 1 month, 1-3 months, 4 months to 2 years, or more than 2 years). Survey recipients were asked to check the one way in which they usually speak with the clinic pharmacist(s) with the choices of: in person (clinic visit), over the telephone, or other. Continuity of care was assessed by asking

patients if there iss one pharmacist at their clinic with whom they speak most, following an accepted definition of Continuity of Care that it is the repeated interaction between the same provider and patient over time (Chao 1988). Patients also were asked to check all of the medical indications they have necessitating the use of warfarin.

Other data sought for future research included an eight-item measure of patients' attitudes toward pharmacy student participation in patient care activities. These data were sought from Clinic A enrollees only due to the continuous presence of students throughout the year in this clinic. The items were included to provide this information to clinic pharmacists. Patient's attitudes toward student participation also was sought for future testing of a possible association between these attitudes and other relationship variables. These extra eight items present on one version of the survey served as the distinction between the two clinic sites necessary for noting clinic site enrollment (Clinic A or B). The last question on both survey versions was an open-ended to provide any comments from the survey recipients.

Following preliminary survey design and development, the instrument was pretested among three graduate students and two professors for structural and design modifications. Content validity, ease of understanding, readability and scaling also were assessed. Based on this pretesting, the survey underwent structural and content revision. The next step of the study included the use of cognitive interviewing as a means of both content validation, pretesting within the sample population and obtaining verbal feedback and comments throughout the survey-taking process (Cronbach and Meehl 1955). A flexible one-on-one interview format was utilized. Eleven subjects were encouraged to reflect aloud on their interpretations of and questions about the survey items. This allowed for content validity to

be assessed, as well as readability and ease of completion. During this process, problems were identified which were addressed and corrected.

Scaling also was assessed through the presentation of various scales wherein subjects were questioned as to what scale was easiest to use. Measurement items were modified or deleted as a result of the pretesting and cognitive interviews conducted. Following this refinement of measures, the pilot survey was finalized. Collection of data from the pilot survey did not provide ample responses to justify statistical measurement refinement, but preliminary data analyses were begun. Also, due to logistical concerns, the final survey mailed was identical in content and form to the pilot survey.

Scales Used

Several rating scales were developed for use in the survey. First, a survey-wide Likert-type scale was tested consisting of numbers ranging 1 through 7, with labels ranging from "Very Strongly Disagree" to "Very Strongly Agree". The number 4 represented "Neither Agree or Disagree". During cognitive interviewing in which patients were asked to complete parts of the survey and discuss the questions or difficulties they were having, this universal scale was discerned to be problematic. A lack of variation of response resulted. Also, respondents expressed difficulty in using and understanding the scale, stating they were unable to disagree to varying degrees. As a result of this, the survey-wide scale was replaced with three different unipolar Likert-type scales. These were developed, tested among subsequent cognitive interviewees and used in different distinct parts of the survey to measure individual construct items.

The first scale provided respondents with different levels of agreement on a scale of 1 to 5 (1=Disagree, 2=Agree a Little, 3=Agree Somewhat, 4=Agree A Lot, 5=Agree Completely). The scale differs from the former agreement scale by being anchored with the words "disagree" and "agree completely". This agreement scale was used to quantify respondents' Warfarin Beliefs. A scale providing ratings from 1 to 7 (1=Awful, 2=Poor, 3=Fair, 4=Good, 5=Very Good, 6=Excellent, 7=Outstanding) was used to measure Interpersonal Relationship Quality. Both a patient's Collaborative Willingness and Felt Indebtedness were measured as a frequency, using the following 5-point scale: 1=Never, 2=A Little, 3=Sometimes, 4=A Lot, and 5=Always. On one version of the survey, the additional measurement of patient's attitudes toward the pharmacy students was sought using this same frequency-based 5-point scale. All scales contained an additional number (8) that respondents could use to indicate the response of "Does Not Apply".

The Critical Interpersonal Incident construct was measured by asking one open-ended question, "Thinking about this Anticoagulation Clinic: Was there ever a time (for example, a visit or a talk) that stands out in your mind? If yes, please describe it". For the purpose of testing the proposed hypotheses, respondents' answers were coded as a discrete, dichotomous variable. The number "1" was given if the patient reported a positive Critical Interpersonal Incident and a "0" if this was not the case. For the purpose of this study, the identification of a critical incident to be of an interpersonal nature and positive included all reports of personal treatment or interpersonal communication with one of the clinic pharmacists resulting in an apparent positive patient response (e.g. expressed satisfaction or appreciation).

STUDY POPULATION

Two pharmacist-staffed outpatient anticoagulation clinics serve as sites for data collection in this study: a Veterans Administration facility (Clinic A) and an academic teaching hospital with clinics (Clinic B) in Wisconsin. The activities of each clinic pharmacist include the monitoring and management of patients' use of warfarin (Coumadin) treatment for blood anticoagulation.

Warfarin

Warfarin is a prescription medication (brand name is Coumadin) that is taken orally for the systemic anticoagulation of blood. Anticoagulation prevents blood clots and is used in patients with a variety of health conditions, ranging from post-heart valve replacement to prophylaxis due to an irregular heart beat (Atrial Fibrillation) to use following surgery or stroke (DUE Criteria, Clinic Pharmacy 1993). Monitoring of warfarin use by health care professionals like pharmacists is critical because of special characteristics of the drug. The dosing or amount of drug required for appropriate levels of anticoagulation vary somewhat unpredictably across patients and across time for the same patient. The therapeutic window for dosing warfarin is narrow[1]. The actions of the drug can be significantly affected by concurrent use of other prescription and nonprescription medications, as well as by sources of Vitamin K (e.g. certain foods). Another reason for professional monitoring of patients' use of warfarin is because the side effects of warfarin use can be quite severe (e.g. internal bleeding).

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[1] A therapeutic window is the dosing range between the minimum effective dose and the toxic dose.

The Clinics

The structure and function of the two clinics in this study are very similar. Both clinics exist to be the source of warfarin management for patients serviced by each affiliated hospital. Both staff two pharmacists each (all four pharmacists currently happen to be female). Each clinic is a site for experiential training for pharmacy students, but of differing degrees, and therefore, all four pharmacists are considered practice-based faculty in affiliation with the University of Wisconsin School of Pharmacy. One pharmacist who staffs, also serves as Director of the clinic and is a full-time faculty at the school. All pharmacists instruct the students who rotate through the site in the ways of patient care and monitoring of anticoagulation therapy through hands-on experience. The pharmacists also function informally as primary care referral sources for all enrolled patients as need dictates.

The clinics were chosen for this study for several reasons. While warfarin is used in all clinic patients to prevent blood clots from forming, patients' disease states or indications for warfarin use vary greatly. With this range of indications exists a range of length of therapy from temporary (several months) to lifelong use. Thus, the diversity of indications for and length of warfarin use suggests an opportunity for variation in patients' experiences, including their beliefs about warfarin use and their perception of the clinic pharmacists with whom they are in contact. Another reason these clinic sites were chosen for this study is the accessibility of patients for interview. The format of most clinic visits is as follows: blood work in the lab upon arrival, followed by a 30 to 60 minute wait before speaking with the pharmacist. This format allows for ample waiting time for patients, increasing the likelihood of patients having time available for interview.

Other reasons for recruiting study participants from these clinics includes the critical requirement of medication use monitoring by pharmacists which allows for greater intensity and frequency of interaction than other pharmacy practice settings. All patients taking warfarin need to be stabilized on the medication initially. They also are required to be carefully monitored throughout the course of warfarin use due to possible side effects, changes in dosing requirements and drug-drug and drug-food interactions. Typically patients beginning warfarin therapy are seen several times during the first two weeks and then about once every four to six weeks while taking the medication. Two channels of communication exist within each clinic, in person clinic visits and telephone contact[2]. These two channels provide opportunity for varied development of a relationship between pharmacist and patient.

The last reason for choosing these clinic sites for this study is to ensure the control of the environmental and process variables. Research suggests the contextual cues present in a pharmacy service environment can affect the communication between patient and pharmacist (Schommer and Wiederholt 1995). Aside from serving patients through both telephone contact and face-to-face encounters, the environment and processes used in each clinic are very similar. Each clinic site functions similar to a typical physician-staffed outpatient clinic in which patients register at a front desk and sit in a waiting area to be called by the service provider (the pharmacist). The actual environment in which conversation occurs is a clinic examination room with a desk, two chairs and an examination table (the latter of which is normally not used). Thus, these contextual cues that may influence communication, social

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[2] Patients who are contacted by telephone often have their blood work done at a lab locally. Clinic pharmacists obtain lab results and provide the monitoring and management services to patients with similar frequency and intensity, but without face-to-face contact.

exchange and the relationship between pharmacist and patient are controlled for across all data collection facilitating the combined use of the data in hypothesis testing.

The study population for this research includes all patients enrolled in the two clinics, who are English speaking, over 18 years old and not practicing physicians. Due to the nature of the study, clinic enrollees known to be physicians were omitted from the sampling frame. All data were gathered from enrolled clinic patients through interview or survey.

SAMPLING PROCEDURES

Both convenience and probabilistic sampling techniques were used to recruit subjects for the study. In all cases, study subjects were recruited by the clinic pharmacists in accordance with the requirements of the Human Subjects Committee. Convenience sampling was used to recruit patients for both the semi-structured and cognitive (pretesting) interviews. Patients from Clinic A were recruited for both types of interviews. The Clinic B site was added to the study after the semi-structured interview phase had been completed. This latter clinic which is approximately 1/4 the enrollment size of the former, served to provide subjects for the cognitive interviews and surveying phases only. In all cases of interviews (semi-structured or cognitive), patients were recruited on clinic visit days. Signed consent was obtained from patients prior to every interview.

Systematic random sampling was used to generate the sample of patients surveyed by mail. All patients interviewed during the first part of the study were excluded from the sampling frame for both the pilot and final surveying. From two alphabetical lists of clinic patients, patient names were drawn systematically. Each clinic was sampled separately in a

quota sampling fashion to ensure adequate representation from each clinic.

For the pilot survey, the Clinic B population was sampled by choosing every tenth patient from the current clinic enrollment of approximately 100 patients using a random number start. This produced ten patient names. An identical procedure was used for the Clinic A patient population of approximately 400, using every tenth name. It produced a sample size of 40 names.

Sample size (n) for the final survey was estimated based on calculations conducted using relative precision (Churchill 1991). The confidence interval was set at 95% ($z = 2$) and calculating based on the 7-point scale, desired precision was set at $\pm .50$ ($H = .50$) with variance estimated at 2.5. Using the following calculation, $n = (z^2/H^2)*\sigma^2$, n was estimated to equal 100. A response rate of 60% was assumed based on pilot survey response. Accounting for the required completeness of all survey items measuring study constructs for intended regression analysis and the potential for data omission due to a large number of clinic enrollees being elderly (indicative of the treatment and related disease states), the final survey sample size chosen was 250 clinic patients. This figure also accounts for the limited size of the study population and resultant sampling frame of approximately 500 patients in total between the two clinics.

The sample for the final survey was obtained in nearly an identical manner to the pilot survey sampling, using every third (Clinic A) or second (Clinic B) name (beginning with a random number start for each). Those patients previously recruited through interview or pilot study survey were excluded from the sampling frame. The final survey sample of useable names contained 200 patients from Clinic A and 50 patients from Clinic B.

DATA COLLECTION

The University of Wisconsin Hospital and Clinics Human Subjects Committee and the William S. Middleton Research and Development Committee approved the study per written protocol prior to all subject recruitment and data collection. Changes of protocol were submitted during the data collection process to allow for audio tape recording of a limited number of interviews (semi-structured) to facilitate analysis of subjects' responses and for Committee review of the survey instrument prior to the survey mailings (See Appendix H).

All interviews were conducted with consenting clinic patients from the study population. Patients who participated in either the semi-structured interviews or the cognitive interviews met alone with the researcher (except in the three cases wherein a patient's spouse was present with the patient). Clinic rooms served as the site of interviews. Patients were interviewed prior to pharmacist consultation on all but two occasions when the interviews were conducted after the clinic visit.

Following all interviewing and survey questionnaire revisions, surveying was conducted through the mailing of an anonymous, self-administered questionnaire in two phases. First, a pilot survey was mailed to a small sample of patients from both clinics for the purpose of measurement refinement, reliability testing and estimation of final survey response rate. The second phase was the mailing of the final survey to collect data for descriptive purposes and hypotheses testing. Both the pilot and final survey copies were printed on two 70 pound cream-colored 11" x 17" sheets of paper and made into eight-page booklets measuring 8½" x 11" and stapled twice along the left fold. Copies of the surveys are included in Appendices C and D. The final survey copy did not differ from the pilot survey copy for either of the clinic

mailings due to logistical concerns. Subjects were mailed either the Clinic A version (with evaluation of pharmacy students) or the Clinic B version (without evaluation of pharmacy students) depending on clinic enrollment.

Surveys were mailed to patients sampled from either Clinic A or Clinic B together with a cover letter printed on each organization's letterhead, respectively (See Appendix I). Cover letters were hand-signed by the respective clinic pharmacists, according to Human Subjects Committee requirements. These letters invited clinic enrollees to participate in the study, on the researcher's behalf, and explained that completion and return of the survey indicated consent to participate in the study. Hand-affixed stamps served as postage for the survey mailings to boost response rate. In addition, a self-addressed, stamped envelope was included with every mailed survey to facilitate survey return to the researcher. Subjects were clearly instructed not to return the surveys to the clinic pharmacists.

One week after the mailing of the surveys, follow-up reminder postcards were mailed to increase the response rate of the survey. Due to the anonymous nature of the survey, all patients were mailed a postcard that encouraged them to complete and return the survey if they had not already done so and thanked them if they already had returned the survey.

DATA ANALYSIS

All survey data (pilot and final, qualitative and quantitative) were coded and entered into a personal computer using a database management computer program. Quantitative data were assigned numerical values based either upon survey scaling, or established coding standards. Coding instructions are found in Appendix. J. Errors in data entry were found and

cleaned through the use of item frequencies and review of the actual surveys. Missing data and responses of "Does Not Apply" either led to replacement with item means or deletion of the entire survey from the analysis. Details of the data cleaning are provided in the Chapter "Results". All quantitative data analysis was conducted using the Statistical Package for the Social Sciences (SPSS 6.1) for Windows.

Qualitative Data

Interviews with patients and the two open-ended survey questions provided qualitative data. Thematic analysis of the data obtained through interviews was conducted by review of notes taken during and after each interview (and by listening to the audio tape recording if available). Themes and trends were noted and reassessed following subsequent interviews. These themes and actual statements made by interviewees facilitated the creation of items needed to measure study variables. Due to the fact that most interviews were not recorded and that none were transcribed, qualitative data collected during the interviews are summarized based on the notes taken. A summary of themes found through interviews is provided in Appendix G.

All qualitative data gathered through the two open-ended questions in the survey are presented in Appendix K. Comments in boldface represent written accounts categorized as positive Critical Interpersonal Incidents by study definition.

Quantitative Data

Analysis of the data received via the pilot survey included descriptive analysis and

reliability analysis. These preliminary analyses were done despite the small sample size. Item-total correlations and a coefficient alpha value for each study construct measure were calculated to begin determinations of the internal consistency of each scale.

Analysis of the final survey data included: descriptive statistics, exploratory factor analysis (using principal components) and reliability testing for measure refinement. Data analysis also included linear (least-squares) regression to test study hypotheses and the proposed model.

Exploratory factor analyses of the items used to measure each study construct were conducted by using principal components analysis. The twenty-one items used to measure Interpersonal Relationship Quality, the eight items used to measure Warfarin Beliefs, the eight items used to measure Collaborative Willingness and the three items used to measure Felt Indebtedness were analyzed separately. Principal components extraction first was employed without rotation due to the oblique nature required of principal components analysis. Where there was more than factor extracted, Varimax rotation was used to allow the components to correlate with one another as a means of comparison with the unrotated results. Eigenvalues were set at greater than or equal to the value of one according to the Kaiser-Guttman rule (Nunnally and Bernstein 1994). To determine which items accounted for the component (factor) composition, item loadings were set at 0.4 and above (Nunnally and Bernstein 1994). The factors extracted from the analysis then were investigated in comparison to the operationalization of the study constructs, investigating simultaneously, each individual item to assess content validity of each scale.

Reliability testing was conducted to determine the internal consistency of the measures

in conjunction with the factor analyses. Cronbach coefficient alpha values of less than .60 were determined a priori to be unreliable measures and therefore unusable for the purposes of further hypothesis testing (Nunnally and Bernstein 1994). Reliability testing of each principal component extracted included calculations of inter-item correlations, item-total correlations, coefficient alpha values, and alpha values if items deleted. Following measure purification, summed scores were calculated for each study construct, assuming scale intervals equal. Correlation analysis was also conducted among summed construct scores to test for multicollinearity among constructs, and for discriminant and nomological validation.

Least-squares regression analysis was used to test study hypotheses, exploring proposed relationships between constructs in the model. The step-wise method was used to include multiple independent variables. Tested assumptions are featured in Appendix N. Three regression equations were tested (see Figure 3). Each equation tests two or three hypotheses simultaneously.

FIGURE 3 - Regression Equations

Interpersonal Relationship Quality	= constant +	Warfarin Beliefs +	Critical Interpersonal Incident	+ error
Felt Indebtedness	= constant +	Warfarin Beliefs +	Critical Interpersonal Incident	+ Interpersonal Relationship Quality + error
Collaborative Willingness	= constant +	Warfarin Beliefs +	Critical Interpersonal Incident	+ Interpersonal Relationship Quality + error

5. RESULTS

The contents of this chapter include the completed data analysis. First, results of the pilot survey are presented here in brief. These results of the final survey follow a description of the methods used to clean the data. The final survey results are presented in the following order:

- Measure purification results (including the descriptive results)
- Critical Interpersonal Incident reporting (and other comments)
- Correlations of the study constructs and validity testing
- Hypotheses testing

PILOT STUDY

Of the 50 surveys mailed, 29 (58%) were returned. All were presumed deliverable. Twenty-two (44%) surveys were usable for the data analysis. The remaining seven surveys that were deemed unusable contained more than five missing or "Does Not Apply" scores for the forty items making up the four multi-item measures. Those surveys containing five or fewer missing or "Does Not Apply" scores were replaced with item mean scores.

Data analysis of the four multi-item measures resulted in acceptable coefficient alpha scores for this exploratory research. These alpha values were: .625 for Felt Indebtedness, .700 for Warfarin Beliefs (WB), .986 for Interpersonal Relationship Quality, and .835 for Collaborative Willingness (See Appendix M for Pilot Study Results). This preliminary reliability analysis suggests possible revisions in the scale development. Item FI2 that speaks

of thankfulness toward the pharmacist (mean = 4.864) may be measuring something other than the two remaining items (means = 3.800 and 4.048). The Pearson correlation between Items FI1 and FI3 is 0.759. Two items (WB6 and WB7), when deleted from the scale for Warfarin Beliefs, increases the coefficient alpha value of the scale, suggesting this deletion would improve the internal consistency of the measure. The results of this preliminary analysis suggest a possible measurement revision, however none was made due to the small number of usable surveys. Hence, the content and format of the Final Survey was identical to that of the Pilot Survey.

FINAL SURVEY

Of the original 250 patient names obtained by sampling, two were found to be unusable. One patient was learned later to be a physician (and excluded per study criteria) and the other patient was learned to be institutionalized in a long term care facility. Of the 248 surveys mailed, all but one were presumed deliverable (this survey was mailed to a recently deceased patient). A total of 173 surveys were returned, 140 (70.4% response rate) from the Clinic A sample and 33 (68.8% response) from the Clinic B sample. Together the overall response rate was 70% (173/247). Following the data cleaning and deletion of unusable surveys, 122 (49.4%) surveys were usable for hypothesis testing.

Data Cleaning Procedures

Frequencies of all study construct items for all 173 surveys returned were obtained to facilitate data cleaning. A substantial number of missing data and "does not apply" responses

were noted, ranging from 6.4% to 30.1%. It was decided that problematic items were those with over 20% of responses either missing or "Does Not Apply". Those items that fell into this classification included: CW7 (30.1%), CW8 (23.1%), FI1 (22.0%), and FI3 (25.5%). (See Appendix A for item wording.) It was determined that items CW7 and CW8 would not be included in the analysis. Not including these items still provided six items for this multi-item measure.

Although over 20% of items FI1 and FI3 had a high rate of unusable data, it was decided that the decision to include or exclude responses would be made on the individual survey level in order to retain these items for the multi-item measure purification. Surveys were excluded from analysis if two or more of the Felt Indebtedness items were unusable (n=24). Likewise, it was determined that if over half of the items in any of the three other scales provided unusable data (n=1), or if more than 5 items across all scales provided unusable data, these surveys were excluded (n=26). Those item responses remaining as missing or "does not apply" were replaced with item mean scores.

Measure Purification Results

The results of the data analysis are presented separately for each of the four main study constructs for which scales were developed, Interpersonal Relationship Quality, Collaborative Willingness, Felt Indebtedness, and Warfarin Beliefs. For all analyses, the 122 surveys were used. Descriptive statistics are given, followed by exploratory factor analysis results, inter-item and item-total correlations, and Cronbach coefficient alpha scores of each scale when applicable. The results of the Critical Interpersonal Incident question then are

presented. The qualitative data obtained through this question and the other open-ended question that welcomed comments are included in Appendix K and are discussed in the following chapter. Last, results of the hypotheses testing are presented. Refer to Appendix N for the descriptive results of the remaining portions of the survey included for future data analysis, variables include: continuity of care, contact intensity, length of enrollment, gender, age and the items used to measure patients' attitudes toward pharmacy student participation in their care.

Interpersonal Relationship Quality

The mean and standard deviation of the scores of the items written to encompass the construct of Interpersonal Relationship Quality are shown in Table 5. Mean item scores are all close in value, ranging from 5.91 to 6.35 (on a scale 7-point scale) indicating very favorable evaluations of the clinic pharmacists. Standard deviations range from 0.87 to 1.13. The exploratory factor analysis resulted in one factor that explains 74.6% of the variance. The factor matrix reveals factor loadings ranging from 0.773 to 0.935 (See Appendix K).

The reliability analysis of the IRQ item scores of the 122 surveys support the factor analysis. Inter-item correlations were all positive, and ranged from 0.568 to 0.855 (See Appendix L for inter-item correlations). A summed factor (scale) score was computed, SUMIRQ, for use in the testing of the hypotheses. Descriptive statistics of the scale include a mean of 129.74, with minimum and maximum scale scores of 84 and 147 out of a possible range of 21 to 147. The standard deviation of the scale is 17.53. Item-total statistics support the twenty-one items creating one scale, with a Cronbach alpha of 0.983.

TABLE 5 -Descriptive Statistics of Scores for Items Measuring Interpersonal Relationship Quality (on a scale of 1 to 7)

	Items	Mean Score	Stand. Dev.
IRQ1	how easy she is to talk to	6.115	0.989
IRQ2	how she has your best interest in mind	6.156	0.979
IRQ3	how she allows you to be yourself with her	6.074	0.955
IRQ4	how sincere she is	6.320	0.874
IRQ5	how trustworthy she is	6.350	0.915
IRQ6	how complete she is in addressing your concerns	6.205	0.953
IRQ7	how she asks if you have any questions	6.172	1.018
IRQ8	how she trusts you in making decisions about your health	5.907	1.128
IRQ9	how she believes what you say	6.041	1.071
IRQ10	how she explains what is happening	6.262	0.907
IRQ11	how she takes time to explain things to you	6.188	1.015
IRQ12	how patient she is with you	6.262	0.934
IRQ13	how relaxed she makes you feel	6.180	0.979
IRQ14	how she shows concern for you	6.264	0.925
IRQ15	how she respects you as a person	6.250	0.920
IRQ16	how she listens to what you have to say	6.246	0.894
IRQ17	how she tries to understand your feelings	6.192	0.939
IRQ18	how comfortable she makes you feel sharing your deepest concerns with her	6.132	0.962
IRQ19	how she respects what you say	6.117	0.989
IRQ20	how special she makes you feel	6.058	1.047
IRQ21	how she puts your best interest first	6.246	0.930

Collaborative Willingness

Table 6 reveals the means and standard deviations for the items measuring patients' Collaborative Willingness. Mean scores for the eight items range from 3.13 to 4.57 on a 5-point scale. A moderate to high amount of variance is evident with standard deviations ranging from 0.98 to 1.70. Due to high rates of "Does Not Apply" responses to Items CW7 and CW8, these items were not included in the analysis.

TABLE 6 - Descriptive Statistics of Scores for Items Measuring Collaborative Willingness (on a scale of 1 to 5)

	Items	Mean Score	Stand. Dev.
CW1	talk to the pharmacist when you are bothered by your warfarin	4.000	1.317
CW2	talk to the pharmacist when you are bothered by other health concerns	3.775	1.1885
CW3	talk about things other than your health with the pharmacist	3.126	1.376
CW4	admit to the pharmacist when you forget to take your warfarin	4.569	0.982
CW5	ask for help from the pharmacist when you need it	4.208	1.142
CW6	ask the pharmacist when you have a question	4.369	0.998
CW7	talk to the pharmacist when you are unhappy with your warfarin	3.510*	1.622*
CW8	tell the pharmacist when you don't agree with her	3.160**	1.702**

* N = 96
** N = 106

An exploratory factor analysis extracting principal components was conducted on the six items remaining in the scale. Two factors resulted (unrotated). One factor explained 52.85% of the variance, while the other explains 17.34% (See Table 7 for the factor loadings). However, the reliability analysis of the six items intended retained measure Collaborative Willingness suggest a one factor solution. The coefficient alpha value for the scale was .813. Inter-item correlations ranged from 0.150 to 0.680. Item CW4 had the lowest correlations with items CW1 (.306), CW2 (.150) and CW3 (.198). Assessment of content validity of this proposed measure suggests deletion of Item CW4 based on it's distinctly different focus on admission of noncompliance with the warfarin compared to the other items containing admissions of talking with the pharmacist and asking questions of the pharmacist.

TABLE 7 - Factor Loadings of Original Items Measuring Collaborative Willingness

	Items	Factor 1	Factor 2
CW1	talk to the pharmacist when you are bothered by your warfarin	.689	.029
CW2	talk to the pharmacist when you are bothered by other health concerns	.770	-.488
CW3	talk about things other than your health with the pharmacist	.716	-.466
CW4	admit to the pharmacist when you forget to take your warfarin	.531	.683
CW5	ask for help from the pharmacist when you need it	.815	.142
CW6	ask the pharmacist when you have a question	.803	.311
CW7	talk to the pharmacist when you are unhappy with your warfarin	--	--
CW8	tell the pharmacist when you don't agree with her	--	--

Because of the greater potential for social desirability of the answer to the noncompliance item (CW4), its higher amount of self-disclosure, and its low correlation with other items, analysis was reexamined without this item. Item CW4 was deleted from the measure. This change did increase the internal consistency of the scale overall, though minimally (.816 to .820). Factor analysis of the five items (CW1, CW2, CW3, CW5 and CW6) resulted in a one-factor solution with factor loadings ranging from .695 to .809 (See Table 8). This one factor explains 59.2% of the variance.

Descriptive statistics for the final five item-scale (SUMCW) show a mean of 19.48, with minimum and maximum scale scores of 9 and 25 out of a possible range of 5 to 25. The standard deviation of the scale is 4.62.

TABLE 8 - Factor Loadings of Five Items Retained to Measure Collaborative Willingness

	Items	Factor Loading
CW1	talk to the pharmacist when you are bothered by your warfarin	.690
CW2	talk to the pharmacist when you are bothered by other health concerns	.816
CW3	talk about things other than your health with the pharmacist	.748
CW5	ask for help from the pharmacist when you need it	.812
CW6	ask the pharmacist when you have a question	.775

Felt Indebtedness

Descriptive statistics of the three items designed to measure Felt Indebtedness are shown in Table 9. There was less variance of responses and higher scores with the second

item (FI2) that reflects thankfulness, in comparison to the other two items. The exploratory factor analysis extracted one factor that explained 64.6% of the variance. Items FI1 and FI3 had factor loadings of .918 and .889, respectively. Item FI2 loaded with a lower value of .551, suggesting that despite the one factor result, this item may be measuring something different from the other two. Inter-item correlations suggest this as well. Items FI1 and FI3 had a high positive correlation of 0.763, but item FI2 had only a low positive correlation with the other two items (0.241 and .330).

The scale with all three items produced a coefficient alpha value of 0.723, but based on the lower correlations between items, item FI2 was deleted from the scale. A summed factor score was created with only items FI1 and FI3 to measure Felt Indebtedness (SUMFI). The resulting two-item scale has a mean of 6.80. The range of minimum to maximum score is 2 and 10, the standard deviation is 2.62 and the Pearson correlation of the two items is 0.763 (p=.000, one-tailed).

TABLE 9 - Descriptive Statistics of Scores for Items Measuring Felt Indebtedness (on a scale of 1 to 5)

	Items	Mean Score	Stand. Dev.
FI1	want to repay the pharmacist in some way	3.537	1.342
FI2	want to thank the pharmacist	4.574	0.726
FI3	owe the pharmacist something in return	3.261	1.444

Warfarin Beliefs

The last study construct for which a scale was developed is Warfarin Beliefs. Descriptive statistics of the eight items intended to measure Warfarin Beliefs are summarized in Table 10. Item mean scores ranged from 2.44 to 4.58. Standard deviations ranged from 0.86 to 1.35.

An exploratory factor analysis extracted two factors explaining 70.68% of the variance. Six items loaded singularly onto the first factor (See Table 11). Item WB6 ("taking warfarin can cause problems for me") was the only item with high loading on the second factor (.909), and item WB7 had dual loading. It was apparent from the factor analysis that these two items (WB6 and WB7) may not fit the patients' schema about the severity and susceptibility issues related warfarin use as the other statements do. Thus, the factor analysis and a reconsidered content validation prompted by it suggested WB6 and WB7 be dropped from the scale.

A reliability analysis was conducted first on all eight items, followed by an analysis of just the six items that had factor loadings >.40 onto Factor 1 without dual loadings (without WB6 and WB7). Considering all eight items, inter-item correlations ranged from -0.132 to 0.797. Without items WB6 and WB7, the lowest item-item correlation was 0.510. The coefficient alpha of the scale consisting of all eight items was .818. When items WB6 and WB7 were deleted from the analysis, based on low inter-item correlations, an alpha of .914 was achieved, revealing high internal consistency.

TABLE 10 - Descriptive Statistics of Scores for Items Measuring Warfarin Beliefs (on a scale of 1 to 5)

	Items	Mean Score	Stand. Dev.
WB1	my need for warfarin is a serious matter	4.549	0.783
WB2	it is critical for me to keep taking warfarin	4.447	0.979
WB3	without warfarin, I will get a blood clot	4.200	1.147
WB4	warfarin is important to my health	4.582	0.861
WB5	warfarin helps to prevent life-threatening problems for me	4.508	0.891
WB6	taking warfarin can cause problems for me	2.436	1.351
WB7	I think about my need to take warfarin more than other health concerns	2.983	1.286
WB8	I will always need to take warfarin	3.933	1.347

TABLE 11 - Unrotated Factor (Component) Matrix of Items Measuring Warfarin Beliefs

	Items	Factor 1	Factor 2
WB1	my need for warfarin is a serious matter	**.844**	.0648
WB2	it is critical for me to keep taking warfarin	**.831**	.165
WB3	without warfarin, I will get a blood clot	**.807**	-.0154
WB4	warfarin is important to my health	**.930**	.0033
WB5	warfarin helps to prevent life-threatening problems for me	**.890**	.0402
WB6	taking warfarin can cause problems for me	-.0173	**.909**
WB7	I think about my need to take warfarin more than other health concerns	.461	-.473
WB8	I will always need to take warfarin	**.804**	.0188

Based on the analysis, items WB6 and WB7 were dropped from the scale. When the remaining six items were factor analyzed, one factor resulted. The amount of variance explained by this one factor, was 73.28%. Descriptive statistics for the six-item scale (SUMWB) show a mean of 26.22, a standard deviation of 5.11 and a range of 6 to 30 out of a possible range of the same.

The descriptive statistics for the four multi-item, summed factor score measures developed in this study are summarized in Table 12. It is with these scores that the study hypotheses were tested.

TABLE 12 - Summarized Descriptives for Multi-item Measures (Study Constructs)

	N	Minimum	Maximum	Mean	Std. Dev.
SUMIRQ	122	84	147	129.74	17.53
SUMCW	122	9	25	19.48	4.62
SUMFI	122	2	10	6.80	2.62
SUMWB	122	6	30	26.22	5.11

Critical Interpersonal Incident and Other Comments

Of the 173 surveys returned, twenty-three included an account of a Critical Interpersonal Incident, as defined, with a clinic pharmacist. This represents 13.3% of the survey respondents. Three accounts were not included in the final hypotheses testing, as these surveys were omitted from the data analysis based on the data cleaning criteria. This resulted in there being twenty positive Critical Interpersonal Incident reports among the 122 usable

surveys.

Responses (and lack of response) to the open-ended question were coded as either a "1" or "0" to create a dichotomous variable. The twenty respondents who appear to have reported a positive Critical Interpersonal Incident received the code of "1", while the remaining 102 received a "0". The qualitative results of the Critical Interpersonal Incident question appear in boldface print amid all qualitative data collected in the surveys. (See Appendix K.) All qualitative responses are included in this appendix with personal identifiers omitted. Including these responses and those written in response to the open invitation to comment in general, 57% of the total 173 respondents included some form of written comment in their survey.

Correlations of Study Constructs and Validity Testing

Correlations among study constructs were calculated as a means of testing for multicollinearity and of preliminary validation. The summed multi-item measure scores created based on reliability and factor analyses were used. Correlation coefficients between the scores range from .284 to .484 (See Table 13 for the correlation matrix). Two dependent variables, Collaborative Willingness and Felt Indebtedness were moderately positively correlated (.484), but are believed to be distinctly different constructs. Hence, separate regressions were conducted, maintaining an alpha of .05 for each regression. All correlations were low to moderate and positive. The lack of high correlations provides some evidence of discriminant validity of these constructs, as higher correlations would imply the constructs were not conceptually different from one another. Last, nomological validity is supported

when relationships among constructs suggested by theory are upheld in the data analysis. The results of the regression analyses used to test the study hypotheses reported in the following section affirm this validity.

TABLE 13 - Correlation Matrix of Multi-Item Measures

	Interpersonal Relationship Quality	Warfarin Beliefs	Felt Indebtedness	Collaborative Willingness
Interpersonal Relationship Quality	1.0			
Warfarin Beliefs	.489*	1.0		
Felt Indebtedness	.307*	.229*	1.0	
Collaborative Willingness	.448*	.355*	.469*	1.0

*All correlations were significant at $p < .01$ (one-tailed).

Hypotheses Testing

Least-squares regression was used to test the proposed hypotheses. For a testing of regression assumptions, refer to Appendix O. Each relationship between study constructs proposed in the study hypotheses was tested at a significance level of 0.05. For the analysis, Interpersonal Relationship Quality was represented by SUMIRQ, Collaborative Willingness by SUMCW, Felt Indebtedness by SUMFI and Warfarin Beliefs by SUMWB. The recall and self-report of a positive Critical Interpersonal Incident (CII) is represented as a dichotomous variable.

Hypotheses H1, H2 and H3 were tested together using one multiple linear regression.

H1: A patient's experience of Felt Indebtedness toward a pharmacist is positively associated with that patient's perception of the pharmacist's Interpersonal Relationship Quality.

H2: A patient's experience of Felt Indebtedness toward a pharmacist is positively associated with that patient's report of a positive Critical Interpersonal Incident with the pharmacist.

H3: A patient's experience of Felt Indebtedness toward a pharmacist is positively associated with that patient's belief in his or her own susceptibility to and the severity of medication use specific to the pharmacist's services.

The independent variables of SUMIRQ, a positive CII and SUMWB were regressed onto the dependent variable of SUMFI. Using the methods of Step-wise regression, the criterion for variable inclusion in the equation was set at a significance level of 0.05 (PIN .05). For the step-wise regression, the criterion for removal was a significance level of 0.10 (PIN .10). The results of the step-wise regression are presented in Table 14.

TABLE 14 - Step-wise Regression Results (Felt Indebtedness - Dependent Variable)*

Variables in	B	S.E. B	Beta	t	Sig t
Constant	1.339	1.689		.793	.429
SUMIRQ	.0405	.013	.271	3.108	.002
CII	1.315	.627	.183	2.096	.038
Variable out			**Beta**	**t**	**Sig t**
SUMWB			.110	1.124	.263

Hypotheses 1 and 2 were supported. Interpersonal Relationship Quality and self-report of a positive Critical Interpersonal Incident both were found predictive of a patient's Felt Indebtedness ($p < .05$). The proposed relationship of a patient's Warfarin Beliefs predicting greater feelings of indebtedness toward the pharmacist was not supported in the regression analysis ($p = .263$). Eleven percent of the variation observed in the construct of Felt Indebtedness was found to be explained by Interpersonal Relationship Quality and patient self-report of a Critical Interpersonal Incident together (adjusted R-squared = 0.112).

Hypotheses H4, H5 and H6 were tested together using one multiple linear regression.

H4: A patient's willingness to collaborate with a pharmacist is positively associated with that patient's perception of the pharmacist's Interpersonal Relationship Quality.

H5: A patient's willingness to collaborate with the pharmacist is positively associated with that patient's report of a positive Critical Interpersonal Incident with the pharmacist.

H6: A patient's willingness to collaborate with a pharmacist is positively associated with that patient's belief in his or her own susceptibility to and the severity of medication use specific to that pharmacist's services.

The independent variables of SUMIRQ, a positive CII and SUMWB were regressed onto the dependent variable of SUMCW. Again, step-wise was used with the same criteria set (PIN .05, POUT .10) as before. Results are shown in Table 15.

Hypothesis 2 was supported. Only the construct of Interpersonal Relationship Quality was found predictive of a patient's Collaborative Willingness ($p < .05$). This one construct accounted for 19.4% of the variance in Collaborative Willingness (Adjusted R-squared = .194). A patient's Warfarin Beliefs was predictive of that patient's Collaborative Willingness, as proposed in Hypothesis 6, but at a relaxed significance level ($p = .056$). Allowing Warfarin Beliefs into the regression equation, by relaxing the criterion for variable inclusion (PIN .10), only minimally increased the adjusted R-squared to .212. In doing this, the beta value for SUMIRQ remained significant (.361, $t = 3.896$, $p = .000$).

TABLE 15 - Step-Wise Regression Results (Collaborative Willingness - Dependent Variable)

Variable in	B	S.E. B	Beta	t	Sig t
Constant	4.173	2.815		1.482	.141
SUMIRQ	.118	.022	.448	5.486	.000
Variables out			**Beta**	**t**	**Sig t**
CII			.033	.392	.696
SUMWB			.179	1.929	.056

To test hypotheses H7 and H8, one linear regression equation was used. As before, Step-wise regression was used with criteria of (PIN .05 and POUT .10). The independent variables of a positive Critical Interpersonal Incident and Warfarin Beliefs were regressed onto the dependent variable of Interpersonal Relationship Quality. See Table 16 for the results of the regression analysis.

H7: A patient's perception of a pharmacist's Interpersonal Relationship Quality is positively associated with that patient's belief in his or her own susceptibility to and the severity of medication use specific to that pharmacist's services.

H8: A patient's perception of a pharmacist's Interpersonal Relationship Quality is positively associated with that patient's report of a positive Critical Interpersonal Incident with the pharmacist.

Both hypotheses 7 and 8 were supported by the regression analysis. A patient's report of a positive Critical Interpersonal Incident with the pharmacist and a patient's Warfarin Beliefs both were predictive of their perception of the pharmacist's Interpersonal Relationship Quality. These two variables explained 25.2% of the variance found in the dependent variable (adjusted R-squared = .252).

TABLE 16 - Step-Wise Regression Results (Interpersonal Relationship Quality - Dependent Variable)

Variable in	B	S.E. B	Beta	t	Sig t
Constant	85.512	7.202		11.873	.000
SUMWB	1.641	.270	.478	6.073	.000
CII	7.707	3.794	.160	2.032	.044

A summary of the relationships between the independent and dependent variables is shown in Figure 4. Based on the regression analyses, arrows represent predictive relationships with beta values indicating the strength of the relationship between variables. Hypotheses 1, 2, 4, 7 and 8 were supported testing at a significance level of .05. When the significance level of .05 was relaxed to .10, Hypothesis 6 was supported as well. Figure 5 shows the final model with only statistically significant associations (solid lines significant at $p < .05$, dotted line significant at $p < .10$).

FIGURE 4 - Proposed Model Tested
(* significant at p<.05, ** significant at p<.10)

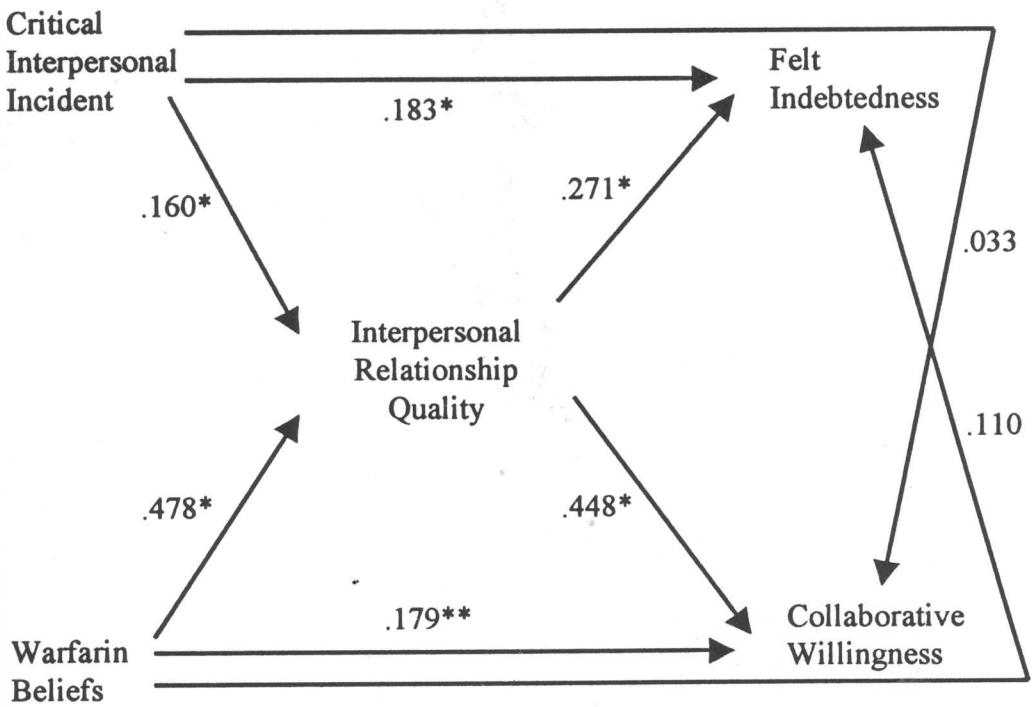
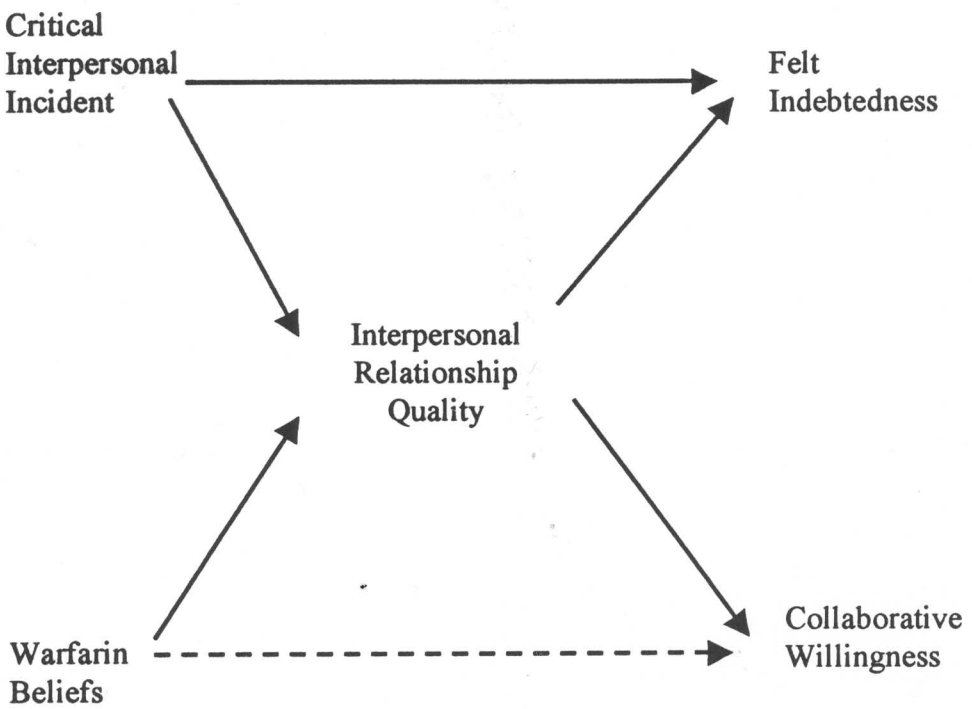


FIGURE 5 - Final Model

(solid lines = significant beta coefficients, $p<.05$; dotted line = significant beta coefficient, $p<.10$)



6. DISCUSSION

In this chapter, results of the research are discussed. Study findings are related to reviewed literature pertinent to the conceptualization and design of this study of the pharmacist-patient relationship. Study objectives are revisited and discussed within the context of the study design and findings. The research results are presented in relation to their implication to the pharmacy profession as it relates to patient care. After this is a discussion of the limitations of the study.

The main study objective was to explore the interpersonal components and dynamics of the pharmacist-patient relationship within the context of pharmacist service provision. This was addressed, in part, through a review of the literature containing studies and commentaries regarding health care provider-patient relations and general relationship theory and through semi-structured interviews. Secondary objectives were to operationalize constructs indicative of the pharmacist-patient relationship and to study their associations to one another. This was accomplished via the development of measures and the subsequent use of these measures in a survey questionnaire with which data were collected for analysis.

Through interview and review of the literature, several study constructs were identified as representative components of a pharmacist-patient relationship. These constructs chosen for investigation were: patients' perception of the Interpersonal Relationship Quality of a clinic pharmacist, and patients' Collaborative Willingness with and Felt Indebtedness toward a clinic pharmacist. A patients' Warfarin Beliefs and self-report of a Critical Interpersonal Incident with a clinic pharmacist also were chosen for study and measured as

potential influences of the relationship. The measurement of these five constructs was intended as a means by which to measure the relationship between clinic patients and their pharmacists.

The research differs from other studies in the area of pharmacist-patient relations. In contrast to the investigations of the amount and type of communication ensuing during a single service encounter between a pharmacist and a patient (Schommer and Wiederholt 1995, Sleath 1996), this study sought to gather information about the ongoing, developing relationship between these two parties. Though the study is limited to a cross-sectional measurement, the measures are intended to encompass more holistic aspects of the exchange-based relationship and not just an occasion of communication between the pharmacist and patient. This study also differs from recent research into the relationship quality of the pharmacist. It was conducted in a clinic setting and not a community setting (Summers-Hayward 1994, Worley 1996) in order to control for service environment and process variables. It adopted a social exchange perspective instead of a service marketing approach (Worley 1996) and thus, tested a different model. Although Summers-Hayward (1994) used Social Exchange Theory within her study framework, her conceptualization, variables and measures chosen differ. She studied the influence of pharmacists' interpersonal communication on patient's satisfaction, intent to return and compliance, using already established measures from disciplines outside of pharmacy. In contrast, as part of this study new measures were developed and the associations among pharmacists' Interpersonal Relationship Quality, patients' beliefs about their medication use specific to their pharmacist's service provision and variables indicative of patient exchange within pharmacist-patient

relationships were tested.

THE PHARMACIST-PATIENT RELATIONSHIP: COMPONENTS AND INFLUENCES

This portion of the discussion is separated into three distinct sections: Predictors of Interpersonal Relationship Quality, Interpersonal Relationship Quality as a Predictor, and Interpersonal Relationship Quality as a Mediator.

Predictors of Interpersonal Relationship Quality

An exchange-based, positive and memorable incident occurring between patients and their pharmacist was found to predict patients' perceptions of their pharmacist's Interpersonal Relationship Quality (IRQ). It is believed that as dyad members experience positive critical incidents of an interpersonal nature with each other, a relationship grows stronger and knowledge and appreciation of each other increases. Higher levels of patients' ratings of pharmacists' IRQ may indicate this relationship growth to an extent. Critical Interpersonal Incident (CII), was included in the regression equation as a dichotomous variable, representing patients' recall and report of such an experience. It is presumed that if a frequency count were possible to obtain, higher numbers of positive Critical Interpersonal Incidents would reveal better patient perceptions of the pharmacist's IRQ. Even with this study's comparison of those who reported a positive CII versus those who did not, it appears that this simple type of self-report is useful in predicting patients' perceptions of the pharmacist.

Although health care practitioners likely may influence their patients' views toward

and beliefs about their illness and related treatments, researchers believe the opposite is true. Issues related to a patient's illness (such as medication use) have been proposed to influence the relationship with the practitioner (Leopold, Cooper and Clancy 1996). In the case of this study, warfarin was the medication focused on due to the nature of the pharmacist-patient interactions within the context of an anticoagulation clinic. Patients' Warfarin Beliefs, as a construct, was found to predict Interpersonal Relationship Quality suggesting the more severe and susceptible a patient feels toward his or her warfarin, the higher are his or her perceptions of the IRQ of the pharmacist. Patients who have a more serious belief about the effects (therapeutic and adverse) of warfarin may demand and receive a higher level of service or care from their pharmacist than other patients. Also, there may be a strong positive correlation between a patient's Warfarin Beliefs and the way in which the pharmacist perceives that patient's need for care. Pharmacists may treat more severely ill patients or those with potentially more medication-related problems or concerns with greater attention and care resulting in higher IRQ ratings by their patients.

Other predictors of pharmacists' Interpersonal Relationship Quality as perceived by patients should be considered for future research. Other variables included on the survey for this purpose include: continuity of care, contact intensity and length of relationship. Inclusion of these variables in future data analyses may help to predict further how patients perceive the IRQ of the pharmacist with whom they interact for the purpose of medication monitoring and management.

Interpersonal Relationship Quality as a Predictor

The two constructs included to study patients' potential response to their pharmacist within a social exchange framework were Felt Indebtedness and Collaborative Willingness. A moderately positive correlation of .469 provides some evidence of discriminant validity, as each was intended to measure a different concept. Both were predicted significantly by patients' perceived trustworthiness, respectfulness and caring nature of their pharmacists (IRQ). These results support the norm of reciprocity asserted in Social Exchange Theory. As a patient perceives his or her pharmacist to be functioning at a higher interpersonal level, that patient in turn responds to this norm of reciprocity.

Greater willingness to collaborate by patients allows for a partnership to develop between a patient and a pharmacist (or other health care professional). Pharmacists practicing within the paradigm of pharmaceutical care are not only required to establish a relationship with their patients, but to allow for and stimulate patient participation (Strand 1997). This patient participation is delineated by Chewning and Sleath (1996) as a way to equilibrate the power differential that can exist between a health care professional and a patient. These collaborative patient behaviors, introduced as responsibilities by Chewning and Sleath (1996), include sharing preferences and values about drug therapy, health-related practices, and insights and concerns about their medication regimens (Wiederholt and Wiederholt 1997).

Another way for patients to respond to higher levels of the pharmacist's IRQ is to feel an inequity of exchange. If a patient feels his or her pharmacist is exchanging resources of greater value than can be reciprocated (e.g. the pharmacist shows the patient she cares by going out of her way to do something for the patient), indebtedness is felt. This was

supported by the study results. Perhaps with those patients already active as participants in their own care, this felt indebtedness leads to even greater patient collaboration with the pharmacist. On the other hand, patients who are inclined to participate actively with their pharmacist may feel even more indebted due to an acute awareness of the participatory nature of the relationship that exists. This association between patient inclination toward active participation and Felt Indebtedness was not tested in this study, but could be considered for future research.

Interpersonal Relationship Quality was found predictive of both patients' Felt Indebtedness and Collaborative Willingness in this study of a limited population of patients receiving specific anticoagulation monitoring services from pharmacists. Future research involving Interpersonal Relationship Quality could investigate this phenomenon in other settings and include other outcome variables that patients' perceptions of a pharmacist's IRQ may predict. Another investigator studied the pharmacist-patient relationship and the effects of pharmacists' interpersonal qualities and trust on outcomes variables (Summers-Hayward 1994). Influences of interpersonal and affective-laden qualities and perceived trustworthiness of pharmacists' communication with patients were found to predict patient compliance with medication use (self-reported), patient satisfaction and intent to return to the pharmacy. These associations suggest future research expansion could include testing the associations between IRQ and these variables. Other possible associations to test are those between IRQ and a patient's loyalty to a pharmacy site or pharmacist and intent to return to the pharmacy site (Worley 1996).

Interpersonal Relationship Quality as a Mediator

In this study, the construct of Interpersonal Relationship Quality appeared to function as a mediating variable wherein a direct association between variables was not found. This finding was not anticipated. For a positive Critical Interpersonal Incident to predict a patient's Collaborative Willingness, the data suggest the patient needs to have a high level perception of the pharmacist's Interpersonal Relationship Quality. For a patient to move from experiencing an exchange-based critical incident with the pharmacist to greater collaborating with that same pharmacist, perceptions of that pharmacist apparently need to improve. This may be dependent on the characteristics of the critical incidents patients experience. Those incidents that weigh more or less heavily on the minds of patients or that have more or less serious outcomes may influence IRQ perceptions differently. These distinctions cannot be made using the qualitative data obtained in this study. Future research in this area would need to collect data pertaining to patients' experience of critical exchange-based incidents with their pharmacist using different methods or differently worded questions.

Interpersonal Relationship Quality also appears to function as a mediating variable between Warfarin Beliefs and the two exchange-based dependent variables. A patient's Warfarin Beliefs was not found predictive of a patient's Felt Indebtedness toward the pharmacist, but the association between these two constructs was mediated by IRQ. These findings reveal that it is not enough for patients to believe their warfarin use is severe and that they are susceptible to warfarin-related concerns to feel a sense of indebtedness toward the pharmacist who helps them to manage these concerns. A high level of Interpersonal Relationship Quality must be perceived too.

Likewise, IRQ appears to mediate the influence of patients' Warfarin Beliefs on their willingness to collaborate with their pharmacist. These mediating effects of IRQ are noteworthy, however the data analysis revealed patients' Warfarin Beliefs, as a construct, also was predictive of Collaborative Willingness (to a lesser degree) without Interpersonal Relationship Quality acting as a mediating variable. This latter finding is consistent with findings by Schommer and Wiederholt (1995) who found the importance of information was predictive of the occurrence of communication between pharmacist and patient in a general community outpatient setting. The more patients believe they are susceptible to the effects of warfarin and that these effects are severe, the more willing these patients are to communicate with their pharmacist in a collaborative fashion, perhaps because they believe the information to be more important.

Based on the direct effects between Warfarin Beliefs and Collaborative Willingness, and the apparent mediating effect of IRQ, there may be a threshold that exists determining the situation wherein IRQ is no longer needed as a mediator. There may be situations patients experience that affect their beliefs about warfarin use and that influence their willingness to collaborate with a pharmacist no matter how trustworthy, caring or respectful the pharmacist is perceived to be. As an example, when patients believe they are very susceptible to their warfarin use and are concerned about side effects, patients may be more likely to ask questions of any pharmacist, thus actively participating or collaborating no matter how much or little the patients perceive the pharmacist to care about them personally.

Although IRQ is a uniquely conceptualized construct, other researchers who studied a similar construct within pharmacist-patient relationship research also found it to have

mediating effects (Worley and Schommer 1997). Relationship Quality, conceptualized to include patient trust of and satisfaction with the pharmacist, was found to mediate the associations between the constructs of pharmacist expertise, contact intensity and pharmacist relation building behaviors with relationship commitment. Without the Relationship Quality being present, the association between these variables was not statistically significant. Implications exist for this mediating effect and the prediction of relationship commitment. Their findings suggest that future research of Interpersonal Relationship Quality may reveal mediating effects with other variables as well as with those found in this study.

THE PHARMACIST-PATIENT RELATIONSHIP AS SOCIAL EXCHANGE

Findings of this study are congruent with Social Exchange Theory and Indebtedness Theory. High performance levels of one exchange dyad member implies the need for reciprocal response of high "performance" levels of the other. Due to the nature of this relationship existing within the context of one-way service provision, one possible patient response is a desire to repay the exchange partner. This desire to repay was operationalized in the construct of Felt Indebtedness and may function as an exchange-based response that occurs when reciprocation cannot be completed. Following the norm of reciprocity, the greater the magnitude of exchange by another party (e.g. higher perceived Interpersonal Relationship Quality of a pharmacist) the stronger the desire or felt need to reciprocate (Greenberg 1980). This was supported in the regression analysis, for the beta value was positive and significant for Interpersonal Relationship Quality predicting Felt Indebtedness.

One question that arises from this research, but which was not empirically

investigated, is whether feelings of indebtedness are an acceptable response. If social exchange theory is operating within the context of developing relationships between pharmacists and patients in the clinic setting, it appears that feelings of indebtedness are possible. For example, patients who experience critical incidents with the pharmacist or who believe their pharmacist is respectful and trustworthy may perceive their pharmacist to care a lot about them, and want to repay them for the care and concern. According to Resource Theory, resolving indebtedness through exchange can occur through many means (Foa and Foa 1980). Exchanges between two individuals can range from monetary payment to exchange of services, information and goods to verbalized thankfulness.

Other than expressed indebtedness, explicit evidence of generalized exchange reciprocity was found in the preliminary stages of the study. Some interviewed patients who expressed feelings of indebtedness reported self-devised ways of resolving the imbalance of exchange through delayed gift-giving and social invitations. Though not explicitly sought from patients, several interviewed patients expressed overt willingness to serve the medical community at large through their participation in scientific study and even donation of one's body to science. Other interviewed patients expressed a willingness to participate in the teaching of students, despite it detracting from the time with their pharmacist, as a means of helping the pharmacist or the health care system as a whole.

Another means by which exchange may be made reciprocal in the eyes of patients could be in the exchange of personal information through collaboration and self-disclosure. Collaborative Willingness was developed as a basis of measuring this aspect of exchange between pharmacist and patient. It is based on the most recent theorizing and practice models

in pharmacy emphasizing mutual decision-making and collaboration for medication management (Chewning and Sleath 1996; Wiederholt and Wiederholt 1997). By combining ideas of patient's willingness to disclose information about themselves and to engage the pharmacist in discussion, Collaborative Willingness was conceptualized to encompass an area of patient response to the pharmacist within the relationship.

In testing the two associations between Interpersonal Relationship Quality and Collaborative Willingness, and Warfarin Beliefs and Collaborative Willingness, it is not suggested that levels of self-disclosure and participation are solely dependent on patients' experience with their pharmacist and their illness. Personality and whether patients are normally active or passive in their role as patient may influence this self-reported willingness as well. What is suggested based on the results of this study is that patients' perception of the Interpersonal Relationship Quality of their pharmacist and patients' Warfarin Beliefs may influence the extent to which patients are willing to actively participate in their care in a clinic setting like the one in which this investigation was conducted.

IMPLICATIONS FOR THE PHARMACY PROFESSION

Just as higher Interpersonal Relationship Quality was found to predict greater Felt Indebtedness in the regression analysis, IRQ also was found to predict Collaborative Willingness among patients surveyed. This collaboration of patients with pharmacists, advocated by Chewning and Sleath (1996) and other researchers through advocacy of partnerships (Berger 1993), is deemed to be an important advance in the provision of pharmaceutical care by pharmacists. Based on its definition and conceptualization, higher

IRQ scores are indicative of patients' perceptions of their pharmacists to be trustworthy, respectful and caring. Therefore, the more patients perceive their pharmacist to have these characteristics, the more likely these patients appear to express a willingness to collaborate and share information about their personal health and well-being.

Implications of increased patient collaboration with pharmacists may lie in the efforts made by pharmacists to present a genuine caring, trustworthy and respectful self to their patients. Patients' experience with pharmacists traditionally may be limited to brief service encounters with limited personal exchange. Their expectations for pharmacist-provided interpersonal exchanges may be low. Their own anticipated exchange with the pharmacist also may be low. Study findings suggest greater patient willingness to disclose information about oneself and to participate in one's care are in part dependent upon higher patient ratings or perceptions of the interpersonal aspects of their pharmacists' exchange within the service context.

The current state of the clinic setting wherein the study was conducted allows for conditions which may foster greater interpersonal exchange by the pharmacist. There is greater time allotment per patient and greater amounts of privacy than is found in the typical outpatient pharmacy setting. Also, the medication management role of the pharmacists provides for more intensive contact frequency and the potential for better evaluation of Interpersonal Relationship Quality by the patients. Aside from creating a more conducive environment or process by which patients are served, pharmacists need to consider how patients perceive their interpersonal exchange. How caring and how respectful do their patients perceive them to be? How trustworthy are they? The study results suggest lower

ratings of a pharmacist in these areas might lead to less willingness to collaborate with that pharmacist, a condition that can compromise patient care. One's own personal tendencies as a pharmacist in the area of service provision and one's practice philosophy likely may influence patient perception of these qualities in the pharmacists as well and should be considered when patient collaboration is desired in practice.

The inclusion of Critical Interpersonal Incidents in this study was exploratory. It is proposed that significant changes and advances are made within developing relationships when certain memorable events occur and cause positive feelings or outcomes for either or both dyad member. Patient self-reports of this type of critical incident between self and a clinic pharmacist were diverse, yet many appeared to encompass some aspect of the pharmacist exceeding expectations. (See Appendix K for the Critical Interpersonal Incident accounts of patients.) Patients reported occasions in which showings of compassion or understanding were displayed to them by their pharmacist. Other Critical Incidents recounted were descriptions of a pharmacist going out of her way to do something for the patient.

Implications for pharmacists may be to seize opportunities presented to them in patient care situations to exceed patient expectations, not only to serve the patient better, but to create a better perception of themselves in the mind of the patient. Pharmacists may need to go above and beyond the typical expectations of patients, while maintaining the appropriate professional roles and responsibilities. In doing this, a pharmacist may disclose more about him or herself (e.g. being trustworthy and having a caring nature) and provide for an interpersonal exchange (CII) with a patient that is of a greater magnitude, and more memorable. This exchange may be a reflection of a more holistic involvement in patients'

lives as described in the nursing literature (Lowenberg 1994) and may be modeled after the type of partnership advocated by the Institute of Medicine (Leopold, Cooper and Clancy 1996). The more personally involved a pharmacist becomes in their patients' lives holistically, perhaps the greater the likelihood that pharmacist would disclose information about him or herself that may reflect on his or her Interpersonal Relationship Quality (e.g. showing trustworthiness).

SCALE PURIFICATION AND RELIABILITY ANALYSIS

The multi-item measures developed to measure Interpersonal Relationship Quality, Collaborative Willingness, Perceived Indebtedness and Warfarin Beliefs were tested for reliability and following purification, were found to have adequate internal consistency. Items determined to have measured something different than the intended construct were deleted in the scale purification but have been retained for future data analysis and consideration in future research. Among the five items deleted from the final measures, one of noteworthy interest is the item stating a desire to want to thank the pharmacist (originally included in the three-item measure of Felt Indebtedness). Despite the factor loading suggesting one factor, this item was deleted from the final measure. The lower inter-item correlations between this item and the other two as well as a lower factor loading were considered. It is believed that thankfulness may be a distinctly different issue than indebtedness felt by recipients of service-related interpersonal exchange. Another deleted item (CW4) was one allowing patients to admit to forgetting to take the clinic-relevant medication. Patients' response to this item may have reflected social desirability (the mean score was between "A Lot" and "Always"), as

patients may not have wanted to reveal any noncompliance. Also, it is possible that the question is unanswerable for those patients who cannot recall having ever not taken their warfarin as directed by the clinic pharmacist.

The two items not included in the final measure of Warfarin Beliefs read as follows: "taking warfarin can cause problems for me" and "I think about my need to take warfarin more than other health concerns". Both of these items had means at least one standard deviation lower than other items scores. Neither of these items loaded onto Factor One (which was retained to measure the designated construct). The first item implies the possibility of side effects or other adverse reactions that patients, despite being aware of the dangers of warfarin, may not consciously classify as "problems" when taking the drug.

The other item attempted to create a state of comparison between the patients' use of and need for warfarin, and any other health concerns. This type of comparison between one's need for and use of warfarin and one's other health concerns may be too complex to consider and answer using the scale provided. It also may be interpreted differently by patients who may or may not suffer from comorbidities and who may understand "other health concerns" to be very different things. This item was deleted from the measure of Warfarin Beliefs. However, future researchers studying similar associations between patients' beliefs about medications and measures related to the pharmacist-patient relationship may want to consider other ways to determine how patients' beliefs about medications specific to a pharmacist's service compare to other disease states or illnesses not addressed by these services. Distinctions in perceived severity level or susceptibility level may help to explain causes of relationship development or reasons for the mediating role of Interpersonal Relationship

Quality discussed earlier.

STUDY LIMITATIONS

The discussion of the main limitations of this study include potential measurement error and sampling bias. As part of the limitations, possible pharmacist, patient and treatment effects also is discussed.

Measurement Error

Descriptive analysis of the items measuring the multi-item constructs revealed some items with only low to moderate levels of variation (less than 15% variance from the mean). Patients' responses to items measuring Interpersonal Relationship Quality had the least amount of variance. Although these responses are unique to each patient, they are based on a limited number of pharmacists (four) who staff the two clinics.

All scales were unipolar in direction to allow for more varied responses in one direction, a perceived necessity based on the cognitive interviews of enrollees from both clinics. Despite this, some ceiling effects were observed with the scale measuring IRQ. The mean scores were all high indicating excellent to outstanding evaluations of the interpersonal relationship quality of the clinic pharmacists. One reason for this may be that the four clinic pharmacists practice pharmacy and care for their patients at a higher level than the average pharmacist. Due to both clinics serving as experiential training sites for pharmacy students, all pharmacists have some type of affiliation with the university as a preceptor or instructor. One has a position as a professor at the pharmacy school.

Other reasons for the high ratings of IRQ and the low variance of responses may be due to social desirability or the pharmacists' exceeding patient expectations. The subjects officially were recruited in all aspects of the study by the clinic pharmacists based on Human Subjects Committee requirements. Each individual's data were not shown to the pharmacists, nor were specific names of pharmacists sought from respondents. Patients were assured of this anonymity before any data collection was begun. (For this reason, pharmacist-patient dyads were not able to be discerned from the data.) Also, the greater intensity of contact with pharmacists in a clinic setting may be novel to most respondents. Their expectation for pharmacists, which likely is based on community pharmacy experiences, may be surpassed in the level of service provided by the clinic pharmacists who are able to spend more time and personal resources on behalf of the patient than the typical community pharmacist.

Random error variance is believed to have been minimized to an extent. Response burden was presumed to have been lessened following revisions based on pretesting and process-based cognitive interviews. The font size used on the survey was enlarged due to the high percentage of older adults in the two clinic populations. More amounts of "white space" were created. Reliability analyses revealed acceptable amounts of internal consistency indicating higher degrees of systematic variance and lower amounts of random error variance. Also, survey respondents were asked to write the scale number corresponding to their answer instead of asking them to circle their response, to discourage them from answering all of the items on a page exactly the same way without considering them individually.

A significant number of the surveys were missing data points causing 51 of the 173 returned surveys to be omitted from the hypotheses testing. Reasons for the missing data may

be due to the average respondent being over 65 years old, and the possible burden of response the survey could have been due to the cognitive, writing and reading requirements. Six respondents may have accidentally missed the entire first two pages of the booklet, as the remaining portion of each of these surveys was complete. During the interview phase of the study, it was apparent that the type of patient who is enrolled in the clinics may vary widely in terms of educational attainment. This variable was not sought in the survey, however. Perhaps for some of the respondents, items on the survey were left blank or answered "Does Not Apply" due to unfamiliarity with these items and even the constructs themselves (e.g. Felt Indebtedness or Collaborative Willingness). Some respondents may have never considered and could not comfortably consider these concepts in the context of answering the survey.

Efforts were made to limit the number of respondents needing to answer "Does Not Apply" to some items on the survey. Because it was not certain that all patients would have been capable of legitimately answering the questions, the statements used to measure Collaborative Willingness were presented as a likelihood and read, "How likely are you to...?". This phrasing reflects, most closely, an intended behavior. Had these items addressed actual behavior, they would have read, "How often do you...?". The wording of the statements used to measure Collaborative Willingness may have elicited different responses had they been phrased in the latter form. This distinction may be a measurement limitation, however the construct definition would no longer be the likelihood of this type of exchange, but the actual self-report of this exchange.

Investigating the role of critical incidents in pharmacist-patient relationships was exploratory. The one question used to measure patient recall (and occurrence) of a Critical

Interpersonal Incident between patient and clinic pharmacist resulted in less than twenty percent of respondents reporting one of a discernable positive outcome. Although the frequency of critical incidents of this nature among pharmacists and patients is not reported in the literature, a content analysis by Ruben (1993), of critical incidents in health care found that of the 29% of patients surveyed who responded, about half were categorized as relating to interpersonal communication. Therefore, the percentage of critical incidents reported in this investigation from a patient population seems reasonably valid.

The question used to capture these critical incidents, however, was not optimal as several responses were not described adequately enough by the respondents to determine whether the memorable incident resulted in a positive or negative outcome. These were not included in the analysis and present a limitation to the findings. Future data collection of critical incidents should include a reworded question designed to capture not only a description of the incident, but a measure of subjects' evaluation of the experience (favorable or unfavorable).

Sampling Bias

Probabilistic sampling methods were used to generate the sample of enrollees for both the pilot and final survey mailings. The data collected were limited to the patient populations of two pharmacist-staffed outpatient anticoagulation clinics in Wisconsin, one existing within a Veterans Administration hospital and the other a civilian, university-based hospital.

Thirty percent of the surveys delivered were not returned. Due to this, there is a possibility of nonresponse bias. To attempt to ascertain the likelihood of this being a problem,

the first twenty surveys and last twenty surveys returned were compared at the item-level across four items with high amounts of variance (IRQ8, FI3, CW3, WB8; one item per each multi-item measure). No statistically significant differences were found between mean scores (2-tailed, p=.05) indicating no recency effect in the response return (See Appendix P).

In addition to nonresponse, 51 surveys were determined to be unusable for hypotheses testing based on either omitted data or the use of the response choice of "Does Not Apply" (See Methods). Although this response category allowed for a higher percentage of unusable surveys, it was deemed necessary to include this response category due to the exploratory nature of the research. Those respondents who completed usable surveys could be different from those whose surveys were not usable. For this reason, several available characteristics of respondents with and without usable surveys were compared across several variables. Variables chosen included respondent age, gender, and clinic association (Clinic A or B). No statistically significant differences were found (See Appendix Q).

Two items with a high occurrence of the "Does Not Apply" response (12.3% and 16.4%) were the first and third items of the Felt Indebtedness scale (FI1 and FI3), respectively. Because of the limited number of items (three) in this scale, and the importance of including the scale in the analysis, it was decided that all respondents without valid answers for two of the three items in this scale would not be counted in the data analysis. (Item means were not used in these cases to retain these responses.) As a result, survey results may be biased toward patients with greater feelings of indebtedness. This does not obfuscate the analysis, as the research does not attempt to determine the exact extent to which patients feel indebted toward their pharmacist. Rather, it documents the existence of the phenomenon and

how varying degrees of indebtedness may relate to other constructs measured in this study.

The subjects who participated in the semi-structured and cognitive interviews were recruited using convenience sampling. Study constructs were operationalized in part based on patient interviews conducted in the first phase. Because the first thirteen interviews conducted to facilitate study construct development were with patients enrolled in only one of the clinics, caution must be taken when interpreting the results. Due to the exploratory nature of this investigation, it was intended that the insight gained during these interviews could be explored further through addition of the second clinic population of patients (and pharmacists). For this reason, knowledge gained in the first set of exploratory interviews pertaining to the language used and the general themes expressed was not intended to be representative of the population of patients served by pharmacists, but an insight to the pharmacist-related experiences of patients in this type of setting.

Scaling and item wording were evaluated through cognitive interviews with a small number of patients from both clinics. Because interpretation of the scales and items among these interviewed patients varied, following these interviews, only recurring problems and questions were reassessed and revised to create the final survey.

Pharmacist, Patient and Treatment Effects

Within this investigation there may be several sampling-related effects that deserve specific attention. These include the gender, age, and race of the pharmacists and patients involved. Also, because the study was conducted in an anticoagulation clinic setting, another sampling-related effect includes the special nature of warfarin therapy and the pharmacist-

provided service requirements related to it.

Inherent to the patient population from which clinic enrolled patients were recruited, are possible effects of the gender and age of the pharmacists and patients. The four pharmacists who staff the two anticoagulation clinics are all female and in their thirties or forties. In contrast, the majority of the patients are male (86.7%) and older than the pharmacists. Approximately 95% of the subjects enrolled in this study are 50 years and older. This age and gender difference may manifest itself in the form of different relationship-based behaviors and perceptions. As an example, during the interviewing portion of this study, several older male patients expressed some paternalistic feelings toward their pharmacist, while other patients (male and female) expressed feelings that may be categorized as "being mothered by the pharmacist". Due to the gender and age differences present in this study, results may not be generalizable to clinic settings wherein gender and age are more balanced.

The gender and age effects may especially be important to consider because of the implicit power differential existing between a health care professional and a patient (Roter 1987; Szasz and Hollender 1956; Thorne 1993). Although this difference may be of a different nature and lesser magnitude between a pharmacist and a patient than between a physician and a patient, this power differential likely exists and does serve as a limitation to this study. One place where the difference in power between the pharmacists and patients may be problematic is in the construct of Felt Indebtedness. Patients who experience a large discrepancy of power between themselves and their pharmacist may respond to the measure of Felt Indebtedness differently than those who experience less of a discrepancy in power because of the varying discrepancy of resource distribution affecting exchange ability.

Another possible effect that was not addressed in this study was that of race or ethnicity. The majority of patients interviewed in this study were Caucasian Americans of European descent. With all of the pharmacists also being Caucasian, there may be an effect of race on the relationships existing and developing between the pharmacists and patients within these clinics.

Also inherent to the clinic sites chosen for this study is a treatment effect. All study subjects were surveyed or interviewed about their experience with the clinic pharmacists in reference to their use of and need for warfarin as an anticoagulant. This provided a control for situational and environmental variables believed to affect pharmacist-patient communication, yet patients who take warfarin to prevent blood clots may respond differently to health care service providers and the necessity of the services they provide. Including patients' Warfarin Beliefs in this study did provide the ability to distinguish among patients' beliefs about their warfarin use and need for it within the sample for they, as a group of patients, may be very different from patients not taking warfarin. Analysis of the data collected for future use pertaining to patients' indication (medical requirement) for use of the warfarin therapy may reveal more about the possible treatment effect.

Due to the various limitations of this study, generalizability of the results are limited. The interpretation and discussion of the results are limited to pharmacist-patient relationships developing within anticoagulation clinics with similar staffing arrangements and processes of care, and involving pharmacists who serve to monitor and manage patients' warfarin use. Study findings are not intended to be generalized to the relationships between community pharmacists and their patients because of the different environment and patient care processes

inherent to community pharmacy practice, as well as the different types of services, the varying degrees of interaction (e.g. continuity of care, contact intensity), and the wide array of treatment and nontreatment issues (e.g. insurance and payment issues) with which patients and community pharmacists interact.

Despite the limitations of this study, it provides a new means of conceptualizing the relationship within a framework of social exchange, having begun validation of new measures of Felt Indebtedness, Collaborative Willingness, and Interpersonal Relationship Quality, and having introduced the concepts of exchange-based critical incidents and medication-related beliefs as influencing patients' perceptions of pharmacists. It introduces a novel way to conceptualize the relationship that may develop between a pharmacist and a patient and offers new ideas for the its future study.

7. CONCLUSIONS

Study results suggest the relationship that exists between a pharmacist and a patient functions under the norm of reciprocity, as explained by Social Exchange Theory. Interpersonal Relationship Quality of the pharmacist, was found to predict patients' willingness to collaborate and patients' feelings of indebtedness toward the pharmacist. The results also suggest Interpersonal Relationship Quality mediates the association between patients' Warfarin Beliefs and Felt Indebtedness, patients' Warfarin Beliefs and Collaborative Willingness, and patients' experience of a positive Critical Interpersonal Incident and Collaborative Willingness. Also, based on the study results, how patients perceive their pharmacist's IRQ may, in part, be predicted by patients' experience of positive critical incidents between them and the pharmacist. All of these findings suggest that how pharmacists portray themselves or show their character to their patients, and how they handle opportunities to interact with patients (above and beyond what is expected) may affect patients' degree of indebtedness towards and collaboration with them.

Other study results show patients' beliefs about the severity of and their susceptibility to warfarin use significantly predicted both their willingness to collaborate with, as well as their perception of, their pharmacist. These findings suggest the beliefs that a patient has about his or her medication use, as it pertains directly to the service provided by their pharmacist, may influence the relationship that patient has with the service-providing pharmacist. Pharmacists whose patients perceive them as being trustworthy, for example, may be more capable of helping patients to fully understand the seriousness of their

medication use. This understanding may in turn foster greater communication and collaborative efforts by the patient. Future research, possibly through in-depth interview, could possibly lend greater insight to this association between medication beliefs and perceptions of health care professionals like pharmacists who are capable of serving patients in the area of medication use management.

One way in which the client-centered (Chewning and Sleath 1996) and participatory approaches to care by pharmacists can be evaluated is by patients' collaboration with those pharmacists. As a proxy measure of behavior, the construct of Collaborative Willingness was operationalized to measure patients' likelihood or willingness to collaborate. By definition, this construct involves patient self-disclosure. Following general relationship theory, it is widely accepted that self-disclosure by both members of a dyad allows for the development of personal relationships (Derlega, Winstead, Wong and Greenspan 1987). Although self-disclosure of the pharmacist was not overtly measured in this research, future consideration of this type of interpersonal exchange may lead to greater insight into the impact and occurrence of critical incidents within this service context. Exchanges that result in perceived critical incidents may be exceptional service opportunities wherein pharmacists indirectly disclose elements of their personal character to their patients. Pharmacists, as providers of health care may need to take advantage of these critical incidents when serving their patients in order to develop the relationship necessary for practicing pharmaceutical care.

This study was exploratory. Conceptually, it contributes to the current knowledge base about pharmacist-patient relationships by introducing new concepts of indebtedness and critical incidents to the investigation of this relationship. Both Critical Interpersonal Incidents

and Felt Indebtedness appear to be useful constructs to investigate when learning about relationships between patients and members of this health care profession. Whereas nursing and service marketing disciplines apparently use the Critical Incident Technique for teaching purposes and service encounter-related research, respectively, research of the occurrence of and content of critical incidents of an interpersonal nature do not appear to have been studied in relation to the development of service provider-client relationships. Although difficult, longitudinal research of the progression of relationship development in health care could offer insight into the role of Critical Interpersonal Incidents in relationship building between patient and practitioner.

The concept of Felt Indebtedness appears to exist among patients who participated in this study to differing degrees, implying the norm of reciprocity that is a mainstay of Social Exchange Theory holds. It was not the intent of this research to study the appropriateness of Felt Indebtedness, however, its existence may have implications for the profession. Future research into Felt Indebtedness should be conducted within other pharmacy and medical practice settings to determine its prevalence. Also, the effects of this type of indebtedness should be studied in its relation to customer (patient) loyalty, intent to return (to a pharmacy) and Relationship Commitment (Worley 1996).

Another area related to Felt Indebtedness that should be explored within the pharmacist-patient relationship is the phenomenon of "step-wise reciprocity" proposed by Williams (1995). In the context of health care, an investigation into reciprocity found that many parents of ill children chose or defaulted to "step-wise reciprocity" involving a third party outside of the original exchange dyad when faced with an inability to reciprocate

generosity shown towards them by family and friends (Williams 1995). Congruent with an extension of Indebtedness Theory (Greenberg 1980), this type of reciprocity could occur when an imbalance of exchange exists within a pharmacist-patient dyad by way of patient willingness to participate in pharmacy student experiential training. Interviews conducted in the early stages of this study suggest some patients may be defaulting to a "step-wise reciprocity" by involving pharmacist students as a third party in the exchange (Williams 1995). Future data analysis of data collected, but not yet analyzed, of patients' attitudes toward pharmacy student participation may offer evidence of this phenomenon.

More demands are being made on practicing pharmacists to provide experiential training sites to pharmacy students whose curricula require such training. The role of the student as a possible third party-recipient of exchange needs to be considered. Also, the overall influence of students' presence in pharmacy practice sites may influence the pharmacist-patient relationship and should be considered when investigating the relationship further, as patient care processes and types and amounts of communication exchange may be affected.

Other opportunities for future research into the pharmacist-patient relationship and specifically, indebtedness include seeking pharmacists' opinions of and experience with expressions of patient Felt Indebtedness. The pharmacist's perspective could contribute greatly to the broader understanding of this phenomenon. Also, due to the definition of Felt Indebtedness relating to obligations to repay the pharmacist, patients' willingness to pay for services could be compared to or studied in conjunction with Felt Indebtedness. Furthermore, investigations into patients' willingness to pay for pharmacist services could include this

indebtedness-based construct for means of convergent validity.

Although gender and age differences between pharmacist and patient limit the generalizability of the results, they present useful insight to the study of the pharmacist-patient relationship. As the population of Americans age, many practicing pharmacists will be younger than their patients. Also, as the student enrollment in pharmacy schools continues to show nationwide trends of females outnumbering males, the profession will experience a feminization that could very likely affect the quality of this relationship between patient and pharmacist (Avery 1991). For these reasons, future investigations into the pharmacist-patient relationship consider not only the age and gender of the patients involved, but the pharmacists as well.

This study explored the pharmacist-patient relationship through a combination of methodologies. By interviewing patients, new knowledge, though not generalizable, was gained which assisted in construct operationalizing and survey writing. The cognitive interviews allowed for process-based face validity testing of the survey during its development within the same population of patients. The surveying allowed for collection of both quantitative and qualitative data pertinent to the pharmacist-patient relationship. The setting chosen for this study allowed for these various types of data collection because of the processes in place related to patient care, such as availability of patients and the physical facilities. Also, the pharmacists' services (care) focus on one specific drug therapy and therefore allowed for some uniformity for pharmacist-patient exchange-based experiences.

This study of the pharmacist-patient relationship considered several constructs believed to either capture a component of the relationship or measure an influencer of it.

Future research into this relationship could include a broader consideration of variables or constructs. Prior service-based experience with the health care system, personal style of communication and the extent of interaction with other pharmacists and other pharmacy organizations could be measured. The study presented here did not include an explicit evaluation of pharmacists' expertise, though patients' beliefs related to pharmacists' expertise could have influenced their perceptions of their pharmacists' IRQ. While this perceived expertise of the pharmacist could be pursued in future research, questions pertaining to the environment and processes experienced by patients in the various service-provision sites could more importantly be considered when studying this relationship.

This study is the first of its kind to investigate the pharmacist-patient relationship in a setting wherein service provision and environment were controlled. Pharmacist-staffed outpatient clinics provide a service environment in which pharmacists can help patients in medication management and appear to be an appropriate setting for this type of investigation. Because this setting is unlike that of traditional community outpatient pharmacy, results are intended to be generalizable to the former practice setting only.

While the study of one-on-one communication encounters between pharmacists and patients can be observed with some degree of accuracy and reliability, the composition and dynamics of something as intangible as a relationship is elusive and requires greater efforts to both conceptualize and measure it appropriately. Future investigation of this relationship should be considered to better understand these components and dynamics, using a variety of methodologies and settings while seeking the pharmacist's perspective together with the patient's. The first step in the process of practicing Pharmaceutical Care is to establish a

relationship with the patient (Strand, Cipolle and Morley 1992). The better the profession can understand, develop, nurture and evaluate this relationship, the better pharmacists will be equipped to provide the level of care useful to patients and advocated by the profession.

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APPENDICES

APPENDIX A

ORIGINAL MULTI-ITEM MEASURES OF STUDY CONSTRUCTS

ORIGINAL MULTI-ITEM MEASURES OF STUDY CONSTRUCTS

Interpersonal Relationship Quality

How would you rate the pharmacist on...

IRQ1 how easy she is to talk to
IRQ2 how she has your best interest in mind
IRQ3 how she allows you to be yourself with her
IRQ4 how sincere she is
IRQ5 how trustworthy she is
IRQ6 how complete she is in addressing your concerns
IRQ7 how she asks if you have any questions
IRQ8 how she trusts you in making decisions about your health
IRQ9 how she believes what you say
IRQ10 how she explains what is happening
IRQ11 how she takes time to explain things to you
IRQ12 how patient she is with you
IRQ13 how relaxed she makes you feel
IRQ14 how she shows concern for you
IRQ15 how she respects you as a person
IRQ16 how she listens to what you have to say
IRQ17 how comfortable she makes you feel sharing your deepest concerns with her
IRQ18 how she tries to understand your feelings
IRQ19 how she respects what you say
IRQ20 how special she makes you feel
IRQ21 how she puts your best interest first

Felt Indebtedness

How often do you feel like you...

FI1 ... want to repay the pharmacist in some way
FI2 ... want to thank the pharmacist
FI3 ... owe the pharmacist something in return

Collaborative Willingness

How likely are you to...

CW1 ... talk to the pharmacist when you are bothered by your warfarin.
CW2 ...talk to the pharmacist when you are bothered by other health concerns
CW3 ... talk about things other than your healt with the pharmacist
CW4 ... admit to the pharmacist when you forget to take your warfarin
CW5 ... ask for help from the pharmacist when you need it
CW6 ... ask the pharmacist when you have a question
CW7 ... talk to the pharmacist when you are unhappy with your warfarin
CW8 ... tell the pharmacist when you don't agree with her

Warfarin Beliefs

I believe...

WB1 ... my need for warfarin is a serious matter.
WB2 ... it is critical for me to keep taking warfarin.
WB3 ... without warfarin, I will get a blood clot.
WB4 ... warfarin is important to my health.
WB5 ... warfarin helps to prevent life-threatening problems for me.
WB6 ... taking warfarin can cause problems for me.
WB7 ... I think about my need to take warfarin more than other health concerns.
WB8 ... I will always need to take warfarin.

APPENDIX B

SEMI-STRUCTURED INTERVIEW FORMAT

SEMI-STRUCTURED INTERVIEW FORMAT

Date: _____ Start Time: _____ End Time: _____

Gender of Interviewee: M F

[brief introduction of self as graduate student]

1a. How long have you been coming to the clinic?

1b. About how often do you come to the clinic?

1c. Why do you come to the clinic?

2a. Thinking about the clinic in general, what words or phrases would you use to describe it?

1.

2.

3.

4.

5.

2b. Now, thinking about how the pharmacist has worked with you over the past _____ years, what words would you use to describe that?

1.

2.

3.

4.

5.

3a. When you think about your time with the pharmacist, what has been important to you?

Can you tell me more about that?

Can you give me an example?

4a. Do you remember when I asked you to describe the pharmacist? How do you think she would describe you? (words or phrases)

4b. How well does she know you?

4c. How well do you feel you know her?

(try scale from 0 to 10, with 0 being not at all and 10 being the most possible)

Sometimes pharmacy students or pharmacists in training come here to learn.

5a. Have you ever had a student or pharmacist in training, someone other than [the pharmacists] work with you in this clinic? [If yes, continue. If no, go to question 6a.] Yes No

5b. Think back to when a pharmacist-in-training or student has worked with you. Describe how that works.

5c. If you compare the pharmacist in training to the pharmacist you normally see, what do you notice is different?

5d. If you could decide whether or not to have students come here or not, what would you decide?

5e. If you could, what advice would you give for the student? (Is there a way she does some things, that we could use to help teach these students?)

I have just a couple more questions for you.

6a. Think about all of the clinics and health care providers (doctors, nurses, pharmacists...) you've seen and experienced during the last ____ years. How would you compare the pharmacist you see at the clinic here, to these other experiences?

6b. What do you notice is different or the same?

6c. What do you really like?

6d. Is there anything that bothers you?

I just have two more questions to ask you.

7. Looking back at all of your time with this clinic--is there an appointment or visit or phone conversation that stands out in your mind?

8. Let's say you could go to where it is closer to home--where it's more convenient for you--to have your warfarin and blood checked.

Would you prefer that to the clinic here? Why/why not?

Do you ever go to a local pharmacy near your home...?
(How about the pharmacy here, where you get your warfarin?)

How would you compare [the clinic pharmacist/s] to the pharmacist(s) there?

APPENDIX C

CLINIC A SURVEY

Anticoagulation Clinic Opinion Survey

This survey was made with the help of people like you who use the services at the Anticoagulation Clinic to have their warfarin (Coumadin) watched. Now we need <u>your</u> help. Our goal is to understand how you feel about taking warfarin and about the service you receive from the clinic pharmacist(s). The survey contains five short parts. It should take about 10-15 minutes to complete this survey.

All of your answers are anonymous.
They will not be shown to anyone who is a part of this clinic.

Start Here:

Is there one pharmacist at the Anticoagulation Clinic who you speak with the most? (Check ONE)

_____ Yes → Please answer this survey thinking about the one pharmacist at this clinic you talk to most.

_____ No → Please answer this survey thinking about all of the pharmacists at this clinic who you talk to.

How do you usually speak with the pharmacist(s) at the clinic? (check ONE only)

_____ in person (clinic visit)

_____ over the telephone

_____ other (please specify:_____)

Now, please turn the page to begin Part 1 of the survey.

PART 1: You and Your Warfarin

First, we ask how you think and feel about warfarin and your health condition that requires warfarin. Use the scale below.

Disagree	Agree a Little Bit	Agree Somewhat	Agree A Lot	Agree Completely	Does Not Apply
1	2	3	4	5	8

Write one number (1-5) in each blank space to best describe how you agree with each statement. If the statement does not apply to you, write the number "8" for "Does not apply".

Example:

_____ I believe taking warfarin is a bother.

Writing a "3" means agreeing somewhat. Warfarin is a bother, not a lot, but somewhat.

I believe...

_____ ... my need for warfarin is a serious matter.

_____ ... it is critical for me to keep taking warfarin.

_____ ... without warfarin, I will get a blood clot.

_____ ... warfarin is important to my health.

_____ ... warfarin helps to prevent life-threatening problems for me.

_____ ... taking warfarin can cause problems for me.

_____ ... I think about my need to take warfarin more than other health concerns.

_____ ... I will always need to take warfarin.

End of Part 1. Please Continue.

PART 2: The Clinic Pharmacist

Next, we ask you to think about the pharmacist who talks with you the most from the Anticoagulation Clinic, if there is just one. If not, think about the pharmacists in general at this clinic. Use this new scale below:

Awful	Poor	Fair	Good	Very Good	Excellent	Outstanding	Does Not Apply
1	2	3	4	5	6	7	8

Write one number (1-7) in each blank space. If you feel the statement does not apply, write "8" for "Does Not Apply".

How would you rate the pharmacist(s) on...?

_____ ... how easy she is to talk to

_____ ... how she has your best interest in mind

_____ ... how she allows you to be yourself with her

_____ ... how sincere she is

_____ ... how trustworthy she is

_____ ... how complete she is in addressing your concerns

_____ ... how she asks if you have any questions

_____ ... how she trusts you in making decisions about your health

_____ ... how she believes what you say

_____ ... how she explains what is happening

Please Continue with Part 2.

PART 2: The Clinic Pharmacist (Continued)

Awful	Poor	Fair	Good	Very Good	Excellent	Outstanding	Does Not Apply
1	2	3	4	5	6	7	8

Continue to use the same scale as before. Write one number in each blank space.

How would you rate the pharmacist on...?

_____ ... how she takes time to explain things to you
_____ ... how patient she is with you
_____ ... how relaxed she makes you feel
_____ ... how she shows concern for you

_____ ... how she respects you as a person
_____ ... how she listens to what you have to say
_____ ... how comfortable she makes you feel sharing your deepest concerns with her
_____ ... how she tries to understand your feelings

_____ ... how she respects what you say
_____ ... how special she makes you feel
_____ ... how she puts your best interest first

End of Part 2. Please Continue.

PART 3: You and the Clinic Pharmacist

Now, think about your talks with the pharmacist(s) at the Anticoagulation Clinic.
Use this new scale below:

Never	A Little	Sometimes	A Lot	Always	Does Not Apply
1	2	3	4	5	8

Write one number (1-5) in each blank space. If you feel the statement does not apply to you, write "8" for "Does Not Apply".

Example:

_____ How likely are you to talk to the pharmacist about your medicines other than warfarin?

Writing "2" means I talk to the pharmacist(s) just a little about other medicines I'm taking.

How likely are you to...?

_____ ... talk to the pharmacist when you are bothered by your warfarin?
_____ ... talk to the pharmacist when you are bothered by other health concerns?
_____ ... share things other than your health with the pharmacist?
_____ ... admit to the pharmacist when you forget to take your warfarin?
_____ ... ask for help from the pharmacist when you need it?
_____ ... ask the pharmacist when you have a question?
_____ ... talk to the pharmacist when you are unhappy with your warfarin?
_____ ... tell the pharmacist when you don't agree with her?

How often do you feel like you...

_____ ... want to repay the pharmacist in some way?
_____ ... want to thank the pharmacist?
_____ ... owe the pharmacist something in return?

End of Part 3. Please Continue.

PART 4: The Pharmacy Students

Now, we ask your opinion about the pharmacy students (and pharmacists-in-training) who come to the clinic to learn from the pharmacists. Use the scale below.
If you have not spoken to a student (or pharmacist-in-training) in this clinic, skip this part and go on to Part 5 on the next page.

Never	A Little	Somewhat	A Lot	Always	Does Not Apply
1	2	3	4	5	8

Write one number (1-5) in each blank space. If you feel the statement does not apply to you, write "8" for "Does Not Apply".

How much do YOU feel that ...?

_____ ... you enjoy talking with the pharmacy students who come to this clinic.
_____ ... your time is well spent when the students talk to you.
_____ ... the students add to the care you get at this clinic.
_____ ... talking with the students at this clinic is a bother for you.

_____ ... you help the students to learn.
_____ ... if you could, you would choose not to talk with the students.
_____ ... when talking to the students, you try to make it easier for them.
_____ ... the students help you in ways that the clinic pharmacist does not.

End of Part 4. Please Continue.

PART 5: Finishing Up

Last, there are just a few more questions for you.

1. How long have you been enrolled in this Anticoagulation Clinic? (check ONE)

_____ Less than 1 month
_____ 1-3 months
_____ 4 months to 2 years
_____ More than 2 years

2. What do you take warfarin for? (Please check ALL THAT APPLY)

_____ Heart valve replacement
_____ Had a blood clot (Deep Vein Thrombosis, Pulmonary Embolism)
_____ Heartbeat is irregular (Atrial Fibrillation)
_____ Have poor circulation in legs
_____ Had a stroke or TIA (transient ischemic attack)
_____ Short term use after surgery
_____ Other _____
_____ Don't Know

3. What is your gender?

_____ Male
_____ Female

4. What year were you born? _____

5. Thinking about this Anticoagulation Clinic: Was there ever a time (for example, a visit or a talk) that stands out in your mind? **If yes, please describe it.**

_____

_____

_____

_____

_____

Please turn the page to write any other comments

We welcome any other comments.

Please mail this survey back to us.

Use the stamped and self-addressed envelope provided.

Thank you for your help.

(prepared by Carol J. Hermansen, R.Ph. and Joseph B. Wiederholt, Ph.D.
UW School of Pharmacy, Sonderegger Research Center)

APPENDIX D

CLINIC B SURVEY

Anticoagulation Clinic Opinion Survey

This survey was made with the help of people like you who use the services at the Anticoagulation Clinic to have their warfarin (Coumadin) watched. Now we need <u>your</u> help. Our goal is to understand how you feel about taking warfarin and about the service you receive from the clinic pharmacist(s). The survey contains four short parts. It should take about 10-15 minutes to complete this survey.

All of your answers are anonymous.
They will not be shown to anyone who is a part of this clinic.

Start Here:

Is there one pharmacist at the Anticoagulation Clinic who you speak with the most? (Check ONE)

_____ Yes → Please answer this survey thinking about the one pharmacist at this clinic you talk to most.

_____ No → Please answer this survey thinking about all of the pharmacists at this clinic who you talk to.

How do you usually speak with the pharmacist(s) at the clinic? (check ONE only)

_____ in person (clinic visit)

_____ over the telephone

_____ other (please specify:_____)

Now, please turn the page to begin Part 1 of the survey.

PART 1: You and Your Warfarin

First, we ask how you think and feel about warfarin and your health condition that requires warfarin. Use the scale below.

Disagree	Agree a Little Bit	Agree Somewhat	Agree A Lot	Agree Completely	Does Not Apply
1	2	3	4	5	8

Write one number (1-5) in each blank space to best describe how you agree with each statement. If the statement does not apply to you, write the number "8" for "Does not apply".

Example:

_____ I believe taking warfarin is a bother.

Writing a "3" means agreeing somewhat. Warfarin is a bother, not a lot, but somewhat.

I believe...

_____ ... my need for warfarin is a serious matter.

_____ ... it is critical for me to keep taking warfarin.

_____ ... without warfarin, I will get a blood clot.

_____ ... warfarin is important to my health.

_____ ... warfarin helps to prevent life-threatening problems for me.

_____ ... taking warfarin can cause problems for me.

_____ ... I think about my need to take warfarin more than other health concerns.

_____ ... I will always need to take warfarin.

End of Part 1. Please Continue.

PART 2: The Clinic Pharmacist

Next, we ask you to think about the pharmacist who talks with you the most from the Anticoagulation Clinic, if there is just one. If not, think about the pharmacists in general at this clinic. Use this new scale below:

Awful	Poor	Fair	Good	Very Good	Excellent	Outstanding	Does Not Apply
1	2	3	4	5	6	7	8

Write one number (1-7) in each blank space. If you feel the statement does not apply, write "8" for "Does Not Apply".

How would you rate the pharmacist(s) on...?

_____ ... how easy she is to talk to
_____ ... how she has your best interest in mind
_____ ... how she allows you to be yourself with her
_____ ... how sincere she is

_____ ... how trustworthy she is
_____ ... how complete she is in addressing your concerns
_____ ... how she asks if you have any questions
_____ ... how she trusts you in making decisions about your health

_____ ... how she believes what you say
_____ ... how she explains what is happening

Please Continue with Part 2.

PART 2: The Clinic Pharmacist (Continued)

Awful	Poor	Fair	Good	Very Good	Excellent	Outstanding	Does Not Apply
1	2	3	4	5	6	7	8

Continue to use the same scale as before. Write one number in each blank space.

How would you rate the pharmacist on...?

_____ ... how she takes time to explain things to you
_____ ... how patient she is with you
_____ ... how relaxed she makes you feel
_____ ... how she shows concern for you

_____ ... how she respects you as a person
_____ ... how she listens to what you have to say
_____ ... how comfortable she makes you feel sharing your deepest concerns with her
_____ ... how she tries to understand your feelings

_____ ... how she respects what you say
_____ ... how special she makes you feel
_____ ... how she puts your best interest first

End of Part 2. Please Continue.

PART 3: You and the Clinic Pharmacist

Now, think about your talks with the pharmacist(s) at the Anticoagulation Clinic.
Use this new scale below:

Never	A Little	Sometimes	A Lot	Always	Does Not Apply
1	2	3	4	5	8

Write one number (1-5) in each blank space. If you feel the statement does not apply to you, write "8" for "Does Not Apply".

Example:

_____ How likely are you to talk to the pharmacist about your medicines other than warfarin?

Writing "2" means I talk to the pharmacist(s) just a little about other medicines I'm taking.

How likely are you to...?

_____ ... talk to the pharmacist when you are bothered by your warfarin?
_____ ... talk to the pharmacist when you are bothered by other health concerns?
_____ ... talk about things other than your health with the pharmacist?
_____ ... admit to the pharmacist when you forget to take your warfarin?
_____ ... ask for help from the pharmacist when you need it?
_____ ... ask the pharmacist when you have a question?
_____ ... talk to the pharmacist when you are unhappy with your warfarin?
_____ ... tell the pharmacist when you don't agree with her?

How often do you feel like you...

_____ ... want to repay the pharmacist in some way?
_____ ... want to thank the pharmacist?
_____ ... owe the pharmacist something in return?

End of Part 3. Please Continue.

PART 4: Finishing Up

Last, there are just a few more questions for you.

1. How long have you been enrolled in this Anticoagulation Clinic? (check ONE)

_____ Less than 1 month
_____ 1-3 months
_____ 4 months to 2 years
_____ More than 2 years

2. What do you take warfarin for? (Please check ALL THAT APPLY)

_____ Heart valve replacement
_____ Had a blood clot (Deep Vein Thrombosis, Pulmonary Embolism)
_____ Heartbeat is irregular (Atrial Fibrillation)
_____ Have poor circulation in legs
_____ Had a stroke or TIA (transient ischemic attack)
_____ Short term use after surgery
_____ Other _____
_____ Don't Know

3. What is your gender?

_____ Male
_____ Female

4. What year were you born? _____

5. Thinking about this Anticoagulation Clinic: Was there ever a time (for example, a visit or a talk) that stands out in your mind? **If yes, please describe it.**

_____

_____

_____

_____

_____

Please turn the page to write any other comments

We welcome any other comments.

Please mail this survey back to us.

Use the stamped and self-addressed envelope provided.

Thank you for your help.

(prepared by Carol J. Hermansen, R.Ph. and Joseph B. Wiederholt, Ph.D.
UW School of Pharmacy, Sonderegger Research Center)

APPENDIX E

CLINIC A REMINDER POSTCARD

Dear Anticoagulation Clinic Patient,

Recently you received an anonymous survey from me on behalf of two researchers at the University of Wisconsin School of Pharmacy. If you already have completed and returned the survey, THANK YOU for your help. If you have not completed it, please consider doing so today. If you did not receive a survey, or if you misplaced it, please call the researchers at (608) 262-6534 to receive a replacement copy.

Thank you for your consideration to participate in this study.

Sincerely,

[pharmacist name]
Director, Anticoagulation Clinic
[identifier]

APPENDIX F

CLINIC B REMINDER POSTCARD

Dear Anticoagulation Clinic Patient,

Recently you received an anonymous survey from us on behalf of two researchers at the University of Wisconsin School of Pharmacy. If you already have completed and returned the survey, THANK YOU for your help. If you have not completed it, please consider doing so today. If you did not receive a survey, or if you misplaced it, please call the researchers at (608) 262-6534 to receive a replacement copy.

Thank you for your consideration to participate in this study.

Sincerely,

[pharmacist name]
Clinical Pharmacist
Anticoagulation Clinic

[pharmacist name]
Clinical Pharmacist
Anticoagulation Clinic

APPENDIX G

EMERGING THEMES FROM SEMI-STRUCTURE INTERVIEWS

Theme	Quotations from Interviewees
Honesty/Truthfulness and Integrity of Pharmacists/ Trustworthiness/ Reliability Respectfulness	"You find out what's going on" "She'll get to the source..[and] find out" "[the pharmacist] is always there to tell you the right way...not experiment with things" "with [the pharmacist] you're not being played to, played around with" "I trust [the pharmacist] with my life" "If she doesn't have an answer, she'll find one...not guess" Feeling relaxed..."dont have to ask twice" "[I] respect [the pharmacists] a great deal" "Not being treated like a slab of meat" "[The pharmacist] shows concern...my warfarin is being monitored so closely"
Feelings of Indebtedness	"deserves recognition" "it's too bad can't give award..." "...give pumpkins and Christmas cards--not enough" "[The pharmacist] doesn't expect anything in return. This bothers me."
Differing Perceptions of Illness and Warfarin Use/Need	Different perceptions of own illness and how it relates to warfarin need/use Very matter of fact--just another health problem vs. This particular need being of obvious greater importance (e.g. "It has to do with my life", "They saved my life")
Caring	<u>Being personable, having a caring attitude</u> "sweetest gal in the world" "takes care of me" "makes me feel good inside" "come and make you laugh, what could be better?" Being serious and personable--not being indifferent or all business "good bedside manner" "my champion" "a good support person...after heart surgery..." "Personal concern [has been most important to me]" "very friendly" "very polite" "easy to joke with and have fun with" "easy to talk to" "concerned about my well being"

Caring (cont'd)	<u>Caring and knowing seem to go together</u> "They know me, they're caring. That makes the difference" "Keeps track of my wife's name" -- seems to mean a lot "You're strangers when you come, then they call you by your first name... they care about you as a person" <u>Feeling welcomed</u> "The first visit was most important. I had just gone through heart surgery--a lot and [the pharmacist] invited me to come to the clinic. She didn't say I had to." <u>Going above and beyond the call of duty</u> Helping when it wasn't "necessary" "She'll help you right off the bat. She'll try a little harder." Being dedicated... "gets to the heart of the problem and solves it" "knows everybody. I don't know how she does it" "takes time to answer questions--I know she's busy" "gives 100%" "is dedicated to [her] job" Availability-- leaving messages and despite pharmacist being busy, always received a response, always have the time for patient "[The pharmacist] is on time...she's really busy." "[The pharmacist] came to see me in the hospital...and has at other times to check up on me...a sweetheart" "I didn't hear from [the pharmacist] all day...she had left for out of state...and called from the airport. That really impressed me the most aside from her good attitude." <u>Being tough on the patients "for their own good"</u> "she's chewed me out because I've neglected to do some things...[she's] very caring" "When I missed a couple appointments...my meds gots screwed up. I got chewed out royally by [the pharmacist]. She got me back into the clinic, made me promise to come back...I took it for granted. [The pharmacist] changed my whole attitude about taking Coumadin. I appreciate it more." "She gets tough to my benefit."
Protective stance/parental about Pharmacist(s)	Defending the pharmacist--what she does, what she stands for; Taking a stand against others who complain--especially as it pertains to waiting to see the pharmacist. Wanting to "take someone out" because other patient was complaining about waiting... "in my younger days I would have"

Humility of pharmacists	Approachability "Common ordinary person...someone you can talk to" Being "down to earth" and "very friendly" "a little more down to earth, not as arrogant as others" "Impressed with experience, qualifications...and so modest"
Appreciation of continuity of care	Comparisons to other health care received... "I'd rather see the same people" "There's less continuity with others"
Comments about students	<u>Comparisons/contrasts between pharmacists and students</u> For some, comparing them was like night and day; I got the impression that their relationship with the pharmacist(s) was on a higher level than just a typical service encounter exchange because of either the inability to make a comparison between them and the students or their switch to functional descriptions from the more interpersonal and meaningful descriptions that preceded when talking about the pharmacist(s). "[The pharmacist is much more relaxed...the students try to be superprofessional...they're learning...they're really interested." For others, there was no distinction between the pharmacist and students. "[The pharmacists and students] are pretty much the same...they're easy to talk to." <u>Helping with/Teaching students/Willingness to be seen by students</u> Some indicated a desire or feeling pleased to help or "pay back" the system and perhaps the pharmacist by helping with the students' learning. "I'm tickled if I can help [the students learn]"

APPENDIX H

HUMAN SUBJECTS COMMITTEE CORRESPONDENCE (INCLUDING APPROVED CONSENT FORMS)

UNIVERSITY OF WISCONSIN MADISON

Notice of Approval*

Meeting Date: December 16, 1996

Protocol Number: 96-720-526
(Refer to this number when making inquiries)

To: Carol Hermansen, R.Ph.
Graduate Student, School of Pharmacy
425 N. Charter St.
Chamberlin Hall

From: Jane C. Fitchen /Judith Van Keir
IRB Administrator

RE: Protocol entitled, "Anticoagulation Clinic Service Attitude Study"

The Human Subjects Committee has reviewed and approved the above research protocol. Approval is effective for one year. Please note the following additional information and requirements: ***approved pending VAH Research and Development Committee approval**

Institutional Endorsement: If a granting agency requires notification of HSC approval, submit the name and address of an individual at that agency. Our DHHS Multiple Project Assurance ID is M1285-0I.

Adverse Reactions: If any serious, unexpected adverse reaction occurs as a result of this study, you must notify the IRB administrator immediately.

Amendments: If you wish to change any aspect of the study (design, procedures, consent forms, or subject population, etc.), please submit your changes with a progress report on a Change of Protocol form. *The change may not be initiated until HSC approval has been given.*

Renewal: You are required to renew approval annually for as long as the study is active. Contact the HSC office for renewal forms.

Termination of Research: Please promptly notify the HSC in writing of the termination of this project.

Consent Forms: All subjects should be given a copy of the consent form(s).

VA Patients: All research involving VA Patients must be reviewed by the VA Research and Development Committee. Call the VA Research Office, 125-7863.

Cancer Patients Approval of all research involving cancer patients is conditional upon review and approval of the protocol by the WCCC Clinical Affairs Committee.

Please keep this notice with your copy of the approved protocol.

Initial Review - Protocol (12/9/96), advertisement, and 4 VA consent forms
Mailed January 8, 1997 xc: B. Birdsall

UNIVERSITY OF
WISCONSIN
MADISON

Notice of Approval

Meeting Date: July 21, 1997

Protocol Number: 96-720-526
(Refer to this number when making inquiries)

To: Carol Hermansen, R.Ph.
Graduate Student, School of Pharmacy
425 North Charter Street

From: Jane C. Fitchen /Judith VanKirk
IRB Administrator

RE: Protocol entitled, "Anticoagulation Clinic Service Attitude Study"

The Human Subjects Committee has reviewed and approved the above research protocol. Approval is effective for one year. Please note the following additional information and requirements:

Institutional Endorsement: If a granting agency requires notification of HSC approval, submit the name and address of an individual at that agency. Our DHHS Multiple Project Assurance ID is M1285-0l.

Adverse Reactions: If any serious, unexpected adverse reaction occurs as a result of this study, you must notify the IRB administrator immediately.

Amendments: If you wish to change any aspect of the study (design, procedures, consent forms, or subject population, etc.), please submit your changes with a progress report on a Change of Protocol form. *The change may not be initiated until HSC approval has been given.*

Renewal: You are required to renew approval annually for as long as the study is active. Contact the HSC office for renewal forms.

Termination of Research: Please promptly notify the HSC in writing of the termination of this project.

Consent Forms: All subjects should be given a copy of the consent form(s).

VA Patients: All research involving VA Patients must be reviewed by the VA Research and Development Committee. Call the VA Research Office, 125-7863.

Cancer Patients Approval of all research involving cancer patients is conditional upon review and approval of the protocol by the WCCC Clinical Affairs Committee.

Please keep this notice with your copy of the approved protocol.

Change of Protocol - Addition of UW anticoagulation clinic, increase in accrual for on-site survey and pretesting, UW consent forms

Mailed July 23, 1997 xc: C. Sorkness

UNIVERSITY OF
WISCONSIN
MADISON

Notice of Approval

Meeting Date: October 6, 1997

Protocol Number: 96-720-526
(Refer to this number when making inquiries)

To: Carol Hermansen, R. Ph.
Graduate Student, School of Pharmacy
425 N. Charter Street

From: Marianne M. Bentz Judith Van Kirk
Director, Health Sciences Human Subjects Committee

RE: Protocol entitled, "Anticoagulation Clinic Service Attitude Study"

The Human Subjects Committee has reviewed and approved the above research protocol. Approval is effective for one year. Please note the following additional information and requirements:

Institutional Endorsement: If a granting agency requires notification of HSC approval, submit the name and address of an individual at that agency. Our DHHS Multiple Project Assurance ID is M1285-0l.

Adverse Reactions: If any serious, unexpected adverse reaction occurs as a result of this study, you must notify the IRB administrator immediately.

Amendments: If you wish to change any aspect of the study (design, procedures, consent forms, or subject population, etc.), please submit your changes with a progress report on a Change of Protocol form. *The change may not be initiated until HSC approval has been given.*

Renewal: You are required to renew approval annually for as long as the study is active. Contact the HSC office for renewal forms.

Termination of Research: Please promptly notify the HSC in writing of the termination of this project.

Consent Forms: All subjects should be given a copy of the consent form(s).

VA Patients: All research involving VA Patients must be reviewed by the VA Research and Development Committee. Call the VA Research Office, 125-7863.

Cancer Patients Approval of all research involving cancer patients is conditional upon review and approval of the protocol by the WCCC Clinical Affairs Committee.

Please keep this notice with your copy of the approved protocol.

Change of Protocol - Pilot survey; UW and VA letters; deletion of chart review
Mailed October 7, 1997

Department of Veterans Affairs

VA RESEARCH CONSENT FORM

Subject Name: _____ **Date** _____

Title of Study: Anticoagulation Clinic Service Attitude Study

Principal Investigator: Carol J. Hermansen, R.Ph. Christine A. Sorkness, Pharm.D. **VAMC:** W.S. Middleton

DESCRIPTION OF RESEARCH BY INVESTIGATOR

INTRODUCTION

This clinic is involved in a research project that will study how people served at the clinic think and feel about the services they receive. The main researcher is a pharmacist not affiliated with the clinic who will conduct interviews and gather medical information for clinic patients specifically related to the use of this clinic. The goal of the research is to learn how to better develop new services and health education programs for patients like yourself.

You are invited to participate in this project. Your participation is totally voluntary, and your decision to participate or not participate will in no way affect the care you receive at this clinic.

We are interested in how easy our survey is to complete. The survey will ask your opinions about the services you receive, your experience with the clinic and your reason for needing anticoagulation with warfarin. However, we will be concerned about how the survey can be improved so that patients like yourself can complete it without problem or concern.

WHAT DOES THE STUDY INVOLVE?

On the day of your clinic visit you will be asked to complete a survey either before or after your visit. It will take about 20 to 30 minutes. The survey will ask you what you like and value about the clinic. The interviewer will be present to answer any questions you have about the survey. The main researcher is a pharmacist not affiliated with the clinic.

SUBJECT'S IDENTIFCATION (I.D. plate or give name-last, first, middle)

Pre-test

VA FORM JAN 1990 10-1086

Department of Veterans Affairs

VA RESEARCH CONSENT FORM
(Continuation Page ___ of ___)

Subject Name: _____ **Date** _____

Title of Study: Anticoagulation Clinic Service Attitude Study

Principal Investigator: Carol J. Hermansen, R.Ph.
Christine A. Sorkness, Pharm.D. **VAMC:** W.S. Middleton

WHAT ARE THE BENEFITS OF PARTIPATING IN THE STUDY?

Participation in this study is not likely to result in health benefits beyond those you now receive at this clinic. Your participation will help us learn more about what you like and value about the service. This will help future development of new services and health education programs for patients like yourself.

WHAT ARE THE RISKS OF PARTICIPATING IN THIS STUDY?

This study will in no way affect the care you receive at this clinic.

ARE THERE EXTRA COSTS?

There will be no costs for participating in the study.

WILL YOU NEED TO MAKE EXTRA CLINIC VISITS?

No. You will not be asked to make extra visits to the clinic. You will be interviewed before or after your scheduled visit to the clinic.

WHO WILL SEE THE RESULTS?

All of the information you provide is confidential. Only research project members will see or hear the information you provide. Your name will not be connected to any of the information you provide. The pharmacists who serve you at the clinic will not be shown your individual responses.

WHAT IF YOU DON'T PARTICIPATE OR CHANGE YOUR MIND?

If you decide not to participate in this project, your medical care will not be affected in any way. You may withdraw from this study at any time.

*U.S.GPO:1991-0-522-343/20543

Department of Veterans Affairs

VA RESEARCH CONSENT FORM

(Continuation Page 3 of 3)

Subject Name: _____ **Date** _____

Title of Study: Anticoagulation Clinic Service Attitude Study

Principal Investigator: Carol J. Hermansen, R.Ph.
Christine A. Sorkness, Pharm.D. **VAMC:** W.S. Middleton

RESEARCH SUBJECTS' RIGHTS: I have read or have had read to me all of the above. Dr. C. Sorkness has explained the study to me and answered all of my questions. I have been told of the risks or discomforts and possible benefits of the study. I have been told of other choices of treatment available to me.

I understand that I do not have to take part in this study, and my refusal to participate will involve no penalty or loss of rights to which I am entitled. I may withdraw from this study at any time without penalty or loss of VA or other benefits to which I am entitled.

The results of this study may be published, but my records will not be revealed unless required by law.

In case there are medical problems or questions, I have been told I can call Dr. C. Sorkness at 608-256-1901 during the day and Dr. C. Sorkness at 608-256-1901 after hours. If any medical problems occur in connection with this study the VA will provide emergency care.

I understand my rights as a research subject, and I voluntarily consent to participate in this study. I understand what the study is about and how and why it is being done. I will receive a signed copy of this consent form.

_____	_____
Subject's Signature	Date
_____	_____
Signature of Subject's Representative*	Subject's Representatives
_____	_____
Signature of Witness	Witness (print)
_____	
Signature of Investigator	

*Only required if subject not competent.

IF MORE THAN ONE PAGE IS USED, EACH PAGE (VAF 10-1086A) MUST BE CONSECUTIVELY NUMBERED AND SIGNED.

Department of Veterans Affairs

VA RESEARCH CONSENT FORM

Subject Name: _____ Date _____

Title of Study: Anticoagulation Clinic Service Attitude Study

Principal Investigator: Carol J. Hermansen, R.Ph. Christine A. Sorkness, Pharm.D. VAMC: W.S. Middleton

DESCRIPTION OF RESEARCH BY INVESTIGATOR

INTRODUCTION

This clinic is involved in a research project that will study how people served at the clinic think and feel about the services they receive. The main researcher is a pharmacist not affiliated with the clinic who will conduct interviews and gather medical information for clinic patients specifically related to the use of this clinic. The goal of the research is to learn how to better develop new services and health education programs for patients like yourself.

You are invited to participate in this project. Your participation is totally voluntary, and your decision to participate or not participate will in no way affect the care you receive at this clinic.

We are interested in your opinions about the clinic and the services you receive. Also, we would like to learn how these relate to your experience with the clinic and your reason for needing anticoagulation with warfarin. We also will ask you for this information.

WHAT DOES THE STUDY INVOLVE?

On the day of your clinic visit you will be interviewed by the main researcher who is a pharmacist not affiliated with the clinic. The interview will be before or after your visit. It will take about 20 to 30 minutes. Questions will be asked about what you like and dislike about the clinic and what you value about the clinic. Answers to questions and all discussion will be audio tape recorded to help the researcher remember what was stated. Once remembered, the tape will then be destroyed.

SUBJECT'S IDENTIFCATION (I.D. plate or give name-last, first, middle)

FEB 1997
IRB APPROVED
MPA:M1285-01
Expires 12/15/97

Interview

VA FORM JAN 1990 10-1086

Department of Veterans Affairs

VA RESEARCH CONSENT FORM
(Continuation Page 2 of 3)

Subject Name: _____ **Date** _____

Title of Study: Anticoagulation Clinic Service Attitude Study

Principal Investigator: Carol J. Hermansen, R.Ph.
Christine A. Sorkness, Pharm.D. **VAMC:** W.S. Middleton

WHAT ARE THE BENEFITS OF PARTIPATING IN THE STUDY?

Participation in this study is not likely to result in health benefits beyond those you now receive at this clinic. Your participation will help us learn more about what you like and value about the service. This will help future development of new services and health education programs for patients like yourself.

WHAT ARE THE RISKS OF PARTICIPATING IN THIS STUDY?

This study will in no way affect the care you receive at this clinic.

ARE THERE EXTRA COSTS?

There will be no costs for participating in the study.

WILL YOU NEED TO MAKE EXTRA CLINIC VISITS?

No. You will not be asked to make extra visits to the clinic. You will complete the survey and talk with the researcher before or after your scheduled visit to the clinic.

WHO WILL SEE THE RESULTS?

All of the information you provide is confidential. Only research project members will see or hear the information you provide. Your name will not be connected to any of the information you provide. The pharmacists who serve you at the clinic will not be shown your individual responses.

WHAT IF YOU DON'T PARTICIPATE OR CHANGE YOUR MIND?

If you decide not to participate in this project, your medical care will not be affected in any way. You may withdraw from this study at any time.

VA FORM JAN 1990 10-1086

*U.S.GPO:1991-0-522-343/20543

Department of Veterans Affairs

VA RESEARCH CONSENT FORM

(Continuation Page 3 of 3)

Subject Name: _____ **Date** _____

Title of Study: Anticoagulation Clinic Service Attitude Study

Principal Investigator: Carol J. Hermansen, R.Ph.
Christine A. Sorkness, Pharm.D. **VAMC:** W.S. Middleton

RESEARCH SUBJECTS' RIGHTS: I have read or have had read to me all of the above. Dr. C. Sorkness has explained the study to me and answered all of my questions. I have been told of the risks or discomforts and possible benefits of the study. I have been told of other choices of treatment available to me.

I understand that I do not have to take part in this study, and my refusal to participate will involve no penalty or loss of rights to which I am entitled. I may withdraw from this study at any time without penalty or loss of VA or other benefits to which I am entitled.

The results of this study may be published, but my records will not be revealed unless required by law.

In case there are medical problems or questions, I have been told I can call Dr. C. Sorkness at 608-256-1901 during the day and Dr. C. Sorkness at 608-256-1901 after hours. If any medical problems occur in connection with this study the VA will provide emergency care.

I understand my rights as a research subject, and I voluntarily consent to participate in this study. I understand what the study is about and how and why it is being done. I will receive a signed copy of this consent form.

_____ Subject's Signature

_____ Date

_____ Signature of Subject's Representative*

_____ Subject's Representatives

_____ Signature of Witness

_____ Witness (print)

_____ Signature of Investigator

*Only required if subject not competent.

IF MORE THAN ONE PAGE IS USED, EACH PAGE (VAF 10-1086A) MUST BE CONSECUTIVELY NUMBERED AND SIGNED.

VA FORM JAN 1990 10-1086

University of Wisconsin
Hospital and Clinics
Anticoagulation Clinic Service Attitude Study

Principle Investigators: Carol J. Hermansen, R.Ph.
Christine A. Sorkness, Pharm.D.

INTRODUCTION

This clinic is involved in a research project that will study how people served at the clinic think and feel about the services they receive. The main researcher is a pharmacist not affiliated with the clinic who will conduct interviews and gather medical information for clinic patients specifically related to the use of this clinic. The goal of the research is to learn how to better develop new services and health education programs for patients like yourself.

You are invited to participate in this project. Your participation is totally voluntary, and your decision to participate or not participate will in no way affect the care you receive at this clinic.

We are interested in your opinions about the clinic and the services you receive. Also, we would like to learn how these relate to your experience with the clinic and your reason for needing anticoagulation with warfarin. We also will ask you for this information.

WHAT DOES THE STUDY INVOLVE?

On the day of your clinic visit you will be asked to complete a survey either before or after your visit. It will take about 20 to 30 minutes. The survey will ask you what you like and value about the clinic. The interviewer will be present to answer any questions you have about the survey, and will ask you questions to learn about your reaction to the survey itself. The main researcher is a pharmacist not affiliated with the clinic.

WHAT ARE THE BENEFITS OF PARTIPATING IN THE STUDY?

Participation in this study is not likely to result in health benefits beyond those you now receive at this clinic. Your participation will help us learn more about what you like and value about the service. This will help future development of new services and health education programs for patients like yourself.

WHAT ARE THE RISKS OF PARTICIPATING IN THIS STUDY?

This study will in no way affect the care you receive at this clinic.

ARE THERE EXTRA COSTS?

There will be no costs for participating in the study.

WILL YOU NEED TO MAKE EXTRA CLINIC VISITS?

No. You will not be asked to make extra visits to the clinic. You will be interviewed before or after your scheduled visit to the clinic.

WHO WILL SEE THE RESULTS?

All of the information you provide is confidential. Only research project members will see or hear the information you provide. Your name will not be connected to any of the information you provide. The pharmacists who serve you at the clinic will not be shown your individual responses.

WHAT IF YOU DON'T PARTICIPATE OR CHANGE YOUR MIND?

If you decide not to participate in this project, your medical care will not be affected in any way. You may withdraw from this study at any time.

AUTHORIZATION: I, _____, have read the above and decide to participate in this research project. I understand that I may withdraw from the study at any time without fear of future prejudice on the part of the investigator. My signature also indicates that I have received a copy of the consent form.

_____	_____	_____	_____
Signature of Subject	Date	Signature of Guardian	Date
_____	_____	_____	_____
Signature of Investigator	Date	Signature of Witness	Date

APPENDIX I

SURVEY COVER LETTERS

DEPARTMENT OF VETERANS AFFAIRS
William S. Middleton Memorial Veterans Hospital
2500 Overlook Terrace
Madison, WI 53705

In Reply Refer To:

November 1997

Dear Anticoagulation Clinic patient,

You are invited to participate in a research project taking place within the VA Anticoagulation Clinic. Researchers are studying what people enrolled in this clinic think and feel about the services they receive and how it relates to views of warfarin (Coumadin). The goals are to develop and improve services and health education programs for people like you. The researchers are Pharmacist Carol Hermansen, a graduate student and Pharmacist Joseph B. Wiederholt, Ph.D. a professor, from the University of Wisconsin School of Pharmacy. They have asked me to invite you, because of your enrollment in this clinic.

Taking part in the study means filling out the enclosed survey and mailing it back to the researchers. Returning the survey will show you agree to participate. Filling out the survey should take about 10-15 minutes. Nothing else is required of you. It is strictly voluntary, that is, you do not have to take part in this study. Whether or not you do will not affect the care you receive or the rights to which you are entitled. The survey asks different questions related to the clinic: How do you feel about taking warfarin (Coumadin)? How do you feel about the service you receive from the clinic pharmacists? How much do you talk to the pharmacists? What do you think about the pharmacy students you talk to? About how long have you been followed by this service?

All of the information you provide is anonymous. Do not write your name on the survey. None of the pharmacists at this clinic will see your individual answers. The researchers will later share what they have learned after combining all people's answers from the survey. I hope you will consider answering the survey, as your opinions matter. The information you provide will help researchers learn how to best develop and improve health education programs for people like you.

To return the survey, do not bring it to the clinic. Please mail it to the researchers at the U.W. School of Pharmacy using the stamped, self-addressed envelope provided.

Thank you for your consideration,

Christine A. Sorkness, Pharm.D.
Director, Anticoagulation Clinic
W. S. Middleton Memorial Veterans Hospital

600 Highland Avenue
Madison, WI 53792

UWHealth
University of Wisconsin
Hospital and Clinics

November 1997

Dear Anticoagulation Clinic patient,

You are invited to participate in a research project taking place within the U.W. Anticoagulation Clinic. Researchers are studying what people enrolled in this clinic think and feel about the services they receive and how it relates to views of warfarin (Coumadin). The goals are to develop and improve services and health education programs for people like you. The researchers are Pharmacist Carol Hermansen, a graduate student and Pharmacist Joseph B. Wiederholt, Ph.D. a professor, from the University of Wisconsin School of Pharmacy. They have asked us to invite you, because of your enrollment in this clinic.

Taking part in the study means filling out the enclosed survey and mailing it back to the researchers. Returning the survey will show you agree to participate. Filling out the survey should take about 10-15 minutes. Nothing else is required of you. It is strictly voluntary, that is, you do not have to take part in this study. Whether or not you do will not affect the care you receive. The survey asks different questions related to the clinic: How do you feel about taking warfarin (Coumadin)? How do you feel about the service you receive from the clinic pharmacists? How much do you talk to the pharmacists? About how long have you been followed by this service?

All of the information you provide is anonymous. Do not write your name on the survey. None of the pharmacists at this clinic will see your individual answers. The researchers will later share what they have learned after combining all people's answers from the survey. We hope you will consider answering the survey, as your opinions matter. The information you provide will help researchers learn how to best develop and improve health education programs for people like you.

To return the survey, do not bring it to the clinic. Please mail it to the researchers at the U.W. School of Pharmacy using the stamped, self-addressed envelope provided.

Thank you for your consideration,

Cheryl Ray, R.Ph.
Clinical Pharmacist

Shelly Van Note, Pharm.D.
Clinical Pharmacist

Anticoagulation Clinic
University of Wisconsin Hospital and Clinics

APPENDIX J

SURVEY CODING KEY

Continuity of Care

1 = Yes
0 = No
9 = Data omitted

Contact Intensity

1 = In person (clinic visit)
2 = Over the telephone
3 = Combination of two indicated
9 = Data omitted

Eight statements to measure Warfarin Beliefs ("You and Your Warfarin")

1 = Disagree
2 = Agree a Little Bit
3 = Agree Somewhat
4 = Agree A Lot
5 = Agree Completely
8 = Does Not Apply
9 = Data omitted

Twenty-one statements to measure Interpersonal Relationship Quality ("The Clinic Pharmacist")

1 = Awful
2 = Poor
3 = Fair
4 = Good
5 = Very Good
6 = Excellent
7 = Outstanding
8 = Does Not Apply
9 = Data omitted

Eight statements to measure a patient's Collaborative Willingness ("You and the Clinic Pharmacist")

1 = Never
2 = A Little
3 = Sometimes
4 = A Lot
5 = Always
8 = Does Not Apply
9 = Omitted data

Three statements to measure Felt Indebtedness ("You and the Clinic Pharmacist")

1 = Never
2 = A Little
3 = Sometimes
4 = A Lot
5 = Always
8 = Does Not Apply
9 = Omitted data

[VA Clinic survey only:]
Eight statements to measure attitudes toward pharmacy students ("The Pharmacy Students")

1 = Never
2 = A Little
3 = Sometimes
4 = A Lot
5 = Always
8 = Does Not Apply
9 = Omitted data

Length of enrollment at Anticoagulation Clinic

1 = Less than 1 month
2 = 1-3 months
3 = 4 months to 2 years
4 = More than 2 years

Indication for warfarin use (3 fields for up to three different answers)

1 = Heart valve replacement
2 = Had a blood clot (Deep Vein Thrombosis, Pulmonary Embolism)
3 = Heartbeat is irregular (Atrial Fibrillation)
4 = Have poor circulation in legs
5 = Had a stroke or TIA (transient ischemic attack)
6 = Short term use after surgery
7 - 87 = combinations per survey results
88 = Don't Know
99 = Data omitted

Gender

0 = male
1 = female

Age

18-98 = 1997 - year of birth
99 = Data omitted

Positive Critical Interpersonal Incident

0 = no
1 = yes

APPENDIX K

WRITTEN COMMENTS FROM SURVEY (INCLUDING REPORTS OF CRITICAL INTERPERSONAL INCIDENTS)

ID	Written Comments (**positive Critical Interpersonal Incidents in boldface font**)
102	I feel that I have received "good" treatment at the Anticoagulation Clinic
103	[pharmacist name] has been beyond excellent!
108	Pharmacist was most pleasant and willing to explain things
109	You go to the head of the class!
110	We are very favorably impressed with this clinic and find it very reassuring to know that such competent caring people are involved.
113	The office visits are basically fine, but when you have to talk to the people in the pharmacy is when it gets to be a pain in the butt and trying to keep up with their changes all the time.
115	I am happy with the way I am treated at the V.A. I [city].
117	I think it is excellent that they are there to lean [on], be able to see, hear, feel how we are doing all the books in the [the world] will never take the place of being right there.
120	As long as I am taking this medicine I am glad that I am being watched in such a careful monitoring program by such professional pharmacists.
122	All of them have been impressed with the number of people who go through this clinic and I am always treated like I am a special patient. That includes Drs, pharmacists and students. Have the most confidence in this group of people.
123	It makes me feel better about my health and every visit I make there makes helps me understand my need so I guess all my visits are outstanding.
124	None in particular. I'm impressed with the concern shown and the way they follow through. I'm in Florida in Jan-Feb and March so my participation is probably not possible.
125	**Yes, when I thought the INR was high enough and they said no, it has to be between 3-4 INR.**
126	In person contact and phone contacts give me the impression that "AC" staff are warm, but cautiously formal. Makes them appear "plastic" which I know IS NOT the case. I was once told that to most people perception is their reality. Thank you! for asking. A nice idea.

128	**In early 1996--when my wife was diagnosed with cancer and I told [pharmacist name] about it. Her compassion and understanding and kind words to me, helped me feel better**, plus every time I go to the VA for Anticoagulation she always shows concern about her and asks me for an update. I think she is the greatest. Not only her but the people that work with her. They take their time and do a thorough job. VA Hospital should be very proud to have [pharmacist name] and her staff.
129	I used to go to my Dr. to have my blood checked. The VA has me now come to the hospital to have it checked]. I think this is better cause the hospital is right on top [of] it. [Pharmacist name] is my Dr. and she is doing a great job with me. I thank her very much.
130	**Yes, they come right out and told me why I had to take Coumadin.** I am very pleased with the service I get.
131	Everyone [is] very kind, caring and considerate. I feel that I get the best care possible at the pharmacists and the anticoag clinic.
132	I am blessed with the treatment I have received from [pharmacist name]. All have treated me like royalty in Anticoagulation Dept. Individual that complain are chronic complainers--I guarantee.
133	**One time when I was there, B[lood] P[ressure] was very high. She took the time to get me in with [Medical Team]. Very caring.** Could not ask for better doctors who care and talk to you. They never rush you in and out. Thank you from the bottom of our hearts.
135	They all stand out in my mind. I receive excellent care there. Your students are extremely well trained. We respect each other.
136	**After a fatal accident I was involved in [pharmacist name] offered to get me any help I might need as in counseling.**
141	I look forward to see [pharmacist name] every time = very wonderful woman
142	Everyone is just great, always have been. Thank you
144	None except long waiting for my turn. I am sure pleased with the expansion of services at the [city] Clinic including Anticoag.
145	**Yes, the time we had a Dr. appointment on the same day but were suppose to wait till 2:00 pm and she got us in early. That was so nice, not to worry about the long ride home--so late then.**
146	Yes, I am a care giver for my wife 7 days a week 24 hrs day. They get me in and out as fast as they can so I can get home.

148	**When I first started I met [pharmacist name]. She went out of her way to explain things so understood them and she still receives my ongoing care now.**
149	**I had difficulty making contact with a doctor, she set it up for me, it was great.** The lady that takes care of my problem, is outstanding.1
150	I am very satisfied with the anticoagulation clinic.
151	Amazing prejudice levels in students and P.I.T.-stroke victim is automatically brain dead and invalid--> time for the nursing home. I have a total trust level in [pharmacist name]. ALL others MUST be questioned to check the validity of their logic and decision process.
152	I think [pharmacist name] is a wonderful person who cares about her patient. I only know her first name, [first name].
153	I hate taking rat poison!!!
155	Dr. [pharmacist name] of the anticoagulation clinic is very thorough and complete in her judgment. After being seen and question by students, the one thing I like she always talks to me personally on all the visits.
156	**When I told [pharmacist name] about another medical problem I was having, and she didn't rest until (about 2 hrs later) she was able to get a professional in that field to look after that problem for me without an appointment. That was far above and beyond her duty, and I think she's A-1!**
158	**I live in [city A] and at one time there was some confusion over where I should receive my Anticoag care. [Pharmacist name] quickly took care of the program. Making sure I understood what both [city A] and [city B] was attempting to do. She quickly put any fears I had to the back burner and reassured me I was in good hands!!** [Pharmacist name] is my care provider, I cannot imagine having any person more qualified, nor having any one showing more concern for my health and well-being. I completely agree with the program and feel she is a highly skilled professional!!
160	**When warfarin was explained to me.**
162	I've not talked to the same pharmacist very often, so I can't comment on that very well. They usually seem to be very interested in my condition, but needing to rehash my condition, seems to be redundant and time consuming when I've waited an hour or two to get in the clinic.
164	**Yes, October 27, 1997. I had got out of the hospital on the 25th--my warfarin was all messed up--so I came into the clinic and she listened and figured everything out and by the following appointment, I was up to the way I was before I went into the hospital.**

165	**My wife also had a stroke and the lady that has charge of the clinic sat me down and put her arm on my shoulder and gave me about a 10 minute talking to as I was really down in the dumps and she had me feeling so much better. I think about that visit often.** I have a lot of medical problems and every one at the VA treats me just great. I guess that is why I have been a volunteer for over 12 years at the hospital. Thank you.
166	**The continual concern for me and my health, especially when I was drinking alcoholically; which I am now in recovery and [pharmacists names] are extremely supportive and caring.** They have been wonderful to me always! I am more than satisfied and well cared for by [pharmacists names]. They are excellent at the work and time they take with me. **I trust them completely and feel they have helped save my life on a few occasions.** Give them a raise!!
169	**The last 2 surgeries when I was allowed to take heparin at home before and after the operations. It gave me a feeling of trust on her part.** [Pharmacist name] is a very thoughtful and caring person. Some of the nurses could learn a lot from her. Maybe she could instruct them on how to treat a patient so he does not feel like thy are doing him a favor by being in the hospital. My thanks to her and her crew.
171	In August of this year, I was referred to a pulmonary specialist in [city A] who recommended that I have a bronchoscope because of what was seen on an X-Ray taken earlier. One of the orders he wrote was to stop my warfarin that day, 8 days prior to the scope. I mentioned to him that felt this was a bit unusual to stop the warfarin that early and that soon. So **I called [physician name] who is my doctor at the VA hospital in [city B] and he conferred with [pharmacist name]. They called the MD in [city A] and got me started on heparin instead. It was a relief for me and I finally came to [city B] for a second opinion, which was good decision for me. I live 100 miles from [city B] and [pharmacist name] set up a plan with the VAMC in [city C] to do the blood tests associated with the use of warfarin there.** Before that I used a civilian clinic in [city C]. This saves me a lot of miles each year. The [city C] VAMC is about 2 miles from my home.
174	[pharmacist name] very concerned and outstanding. [pharmacists names] are excellent.
175	**During my first visit with the pharmacist, she gave me her home phone number and told me that if I ever had a problem to call her regardless of the day or time. This is the only health professional that has ever dome this for me.** I am quite certain that I'll have to take coumadin for the rest of my life, and am comfortable with the way my coagulation time is monitored at the clinic. The pharmacist are excellent and their commitment is evident in the way their students carry out their assignments.

176	I feel I get excellent care at the hospital and pharmacy.
177	I have had excellent care and service at the clinic.
179	Because of the large number of "coag" patients there is a long waiting period each time at clinic. I think for patients like myself (who have had their medication stabilized) there should be an alternate plan for communication that would elevate [improve] the congestion and waiting time. When I have a local lab and results are faxed to the UW pharmacy, usually the UW pharmacists follow up with a phone call or postcard, which normally takes just a couple of minutes. When I go to the UW clinic at the VA I usually have [to] wait an hour to an hour and a half to see the pharmacist. It seems like a more efficient system could be set up, especially for those of us who have established their dosage.
185	[Pharmacist name] has always been very understanding for me and so has the other students also. I fell very lucky to have a team like them to [be] watching for my health problems.
190	When on vacation had some trouble on phone conversation to pharmacy and results. You have a real good and concerned pharmacist. She tries to make you feel good about yourself and she does the very best she can which she is concerns about your health. Thank you.
192	All of them [in reference to question asking was there ever a time that stands out in your mind?]
193	**Talked to [pharmacist name] about a pain at the base of my neck. She made a clinic appointment with the Cardiology Dept. Which eventually led to heart surgery.** From my experience at the VA Hospital, the Anticoagulation Clinic is one of the most efficiently operated.
194	No, all about the same. Because of ventricle fibrillations my roommate noticed I had turned blue, my heartbeat (pulse) zero and turned me in to floor nurse and saved my life with electric paddles. Your roommate can be your best friend and save your life like in boy scouts you always have a "buddy" and never swim alone. Thus, I wrote VA Hospital administrators to <u>never</u> give a patient a private room or they can die in private, as [a person's name] did in your hospital. Warfarin was new in 1949 when [a person's name] of Chicago was general contractor. What is now Lot 60 was a landfill dump for garbage and trash and full of rats. The unfinished hospital being prepared for its patients had many rats you could see crossing hallways from room to room because workmen would leave unfinished sandwiches in rooms. Warfarin was used to kill rats making hospital useable. My father, [name], was involved with [name] Construction Co. In sale of 3.5 million brick to build hospital. [name provided and social security number]
195	Could not expect any better care or cooperation than I get here!!

197	**When I told pharmacist I was drinking alcohol while taking coumadin. Was warned not to drink. When I stopped taking Coumadin because I wanted to drink. I believe I have the right attitude now.** Have not drank alcohol in several months but sure would like to. I am extremely grateful for the help I am getting from everyone at the VA Medical Center.
199	Very good. I talk to them once a month.
204	I am the daughter of the person enrolled in this clinic. We have answered this questionnaire together because I take care of all her medications and I am the one that discusses the results of protime with the clinic pharmacists. There are two that I speak to, they are [pharmacists names]. Their time and concern is appreciated. Thank you.
206	I am an author or editor of 6 books in the bio-medical field and am conducting research project sponsored in part by the Nobel Prize Committee for Physiology or Medicine: In short I know a little bit about the delivery of health-medical services. And in my opinion [pharmacists' names] are exceptionally outstanding in providing me with services in the Anticoagulation Clinic.
208	Thank you for your kind and considerate help to get me well. It is a very long road and I could not do it without your help.
209	All clinic appointments have been welcomed and appreciated and the close observances gives me peace of mind.
212	When I am scheduled for an appointment, and ask the people at the desk because of my distance from the clinic 275 miles, could they please get me in to see [pharmacist name] or whoever I am seeing as soon as possible, so I can get somebody to drive me, and they never do. This has nothing to do with the pharmacists. It pertains to scheduling.
213	Yes--I was told that I could get a blood clot if I don't take it. However I would like not to have to take any pills as I'm afraid of the possibility of side effects that can cause other problems. It would be good news to be told your don't need the medication much longer and that vitamins would be enough to take. I really don't like so much medication as I must drink a lot of water, then I'm running to the bathroom several times every night. It also causes bowel problems by becoming very difficult to have a normal B.M. And so much gas, its embarrassing to be near people with all that stomach noise. And in addition to that they cause an enormous foul odor right through my pores as it causes me to perspire on the upper body and the lower body is <u>cold</u> <u>cold</u>.

214	At one time and one time only. Drawing my blood was a blocker by an ill-trained person who drew up, [unreadable]... nearest my knowledge she was released. This occurred at the [name] Clinic, [out-of-state city]. I do not feel that anonymity is needed. My name is [name provided and social security number]
215	**When it was first explained to me why I had to use it when [pharmacist name] calls when my blood isn't quite right**, thanks [pharmacist name] for your concerns. This is an excellent clinic.
216	**Many -- was sent to other labs as needed like Urgent Care.** Thank [pharmacist name] for the help and pleasant way you do your work.
217	I think my care has always been so outstanding that there really isn't any one time that stands out in my mind! I am so thankful for the VA-[city]!!
218	[Pharmacist name] always seems to take her job serious! That sort of makes me as a patient think it might be important to take warfarin. They need to give you more help, because they must expect you to see more people. It's sort of like water through a pipe. The only way to get more water through is to enlarge the pipe, or increase the pressure. If the pressure gets too great something not good usually happens.
219	I took one Ascriptin a day before I had surgery for ovarian cancer. I quit taking it then while I had chemo. I didn't take any I had to take too many other pills and everyone was hard to swallow. I sat down most of the time so I got blood clots. When I first went on coumadin I could hardly swallow them. I kept thinking of rat poison. I sure appreciated talking to the pharmacists. I know I wouldn't of had that kind of help around here. Thank you very much they did a good job.
220	Have to wait too long before you see pharmacist. Doing a good job.
224	[Pharmacist name] is a very excellent pharmacist and I have a lot of respect for [name] and her assistants. VA Hospital [city] is excellent and a needed hospital for vets.
229	Always enjoy going. I feel I need their help. Like to get in faster and out.
233	The day I had the angiogram.
234	I would like to say every time was very informative. These two young ladies or pharmacists have been so much help and so pleasant that I would hope anybody who needs help with the Anticoagulation Clinic should get them no matter what problems they had. There patients always come first and I really appreciate these two pharmacists.
235	[Pharmacists names] are always a pleasure to see and speak with. I would rather <u>not</u> be seen by students.

238	Doctor [physician name] explained why they have to do to increase blood circulation. The workers are very friendly.
239	My first visit.
240	I forgot to take the Coumadin one evening at the prescribed time and I tried to call our pharmacist about it but couldn't contact her so we worried that something might happen until the next day. No problems developed at all. Thank you.
242	I think the girls I talk to do a very good job. I am at ease talking to them.
243	All my visits and all my talks with the Anticoagulation Clinic are very, very, very good. I hope everyone has as good of service as I do. I feel that everyone does from talking with others in the waiting room. She is one well-like person. Thanks for having her there for all of us. The rest of the staff is very good also. Thanks for being there.
244	I think the care I have received at the VA has always been very thorough and caring. I started getting care at the VA after a stroke on [1991 date] which left me disabled and unable to go back to work and many health problems since that time.
246	We are very well pleased with the care and help we receive at the hospital. The medications are very well explained. [name signed]
247	I have had a very good relationship with the Anticoagulation Clinic.
249	I am very satisfied with the service that I have received from the anti-coagulation clinic at the [city] VA Hospital.
250	I consider each visit important in staying healthy. I also take vitamins for better health and I would like to see some experimenting with vitamin E, an important antioxidant, in conjunction with warfarin.
251	I think that [name] Veterans Hospital is a very nice hospital and is very efficiently operated.
253	I've always been treated very nice by Dr. [pharmacist name] and the pharmacy students. The only thing I didn't like was the long wait to get in to see them.
254	I have been hospitalized 3 or 4 times in the years I have been in the Anticoagulation Clinic. Every time [pharmacist name] has been to see me to make sure everything has been ok. We consider her a friend as well as our medical care provider.
255	My experiences with the Anticoagulation Clinic have all been positive.
257	You and your staff of med student are doing a very good job. Keep up the good work because you have a fine group of upcoming Drs.

258	I guess warfarin is good, but if you break the skin it's hard to stop the bleeding and it makes your skin thin.
260	Every visit has been very beneficial to me. I appreciate the care and concern that the pharmacists give me. I have been a patient at the Anti-Coag Clinic since 1987. The pharmacists have been wonderful in easing my concerns and getting us to the proper doctors when I have a problem.
261	**My first contact with [pharmacist name] after I was put on warfarin and went to the clinic. She was very professional, friendly and thorough in obtaining all details and showed concern for patients.** This has continued over the past couple years at the clinic and when required by phone. It made me feel confident under her care. The other pharmacists and pharmacy students have all been very helpful when I have had my visits with them or in conjunction with my appointments with [pharmacist name]. There is apparently very good coordination with this clinic and my doctor--Dr. [physician name].
262	All visits are exceptional! A very good clinic for what I need! Hospital great also! Do remember first visit to anti-coag. All staff tremendous! Quite good! Very satisfied!
263	One visit, I was having problem with pain in my other leg--[name other than a pharmacist] took the time to hunt up a doctor to examine the leg and determine if a clot in it. The only problem with the warfarin is that I have Parkinson also and every time I fall against something, I must deal with spells of prolong bleeding.
264	Keep up the good work have more people waiting on you so you can leave sooner. It takes too long for the med.
269	I have bone cancer and metal heart valves and defibulator. I wait too long for appt. They are always late. I suffer for all this. I really appreciate [pharmacist name].
271	[Pharmacist name] may well be the single most intelligent, caring, innovative and competent pharmacist in the VA System. She is also clearly an outstanding student trainer. She seems to be able to keep track of <u>all</u> her patients and their individual histories, names and concerns. Absolutely outstanding personally and professionally! She also developed an innovative use of children's aspirin combined with warfarin to eliminate pain associated with "purple toe" syndrome.
272	When you have to wait so long to be seen sometime an hour up to two hours.
273	**Soon after I started the program I went to Europe and the pharmacist was very helpful in planning the trip.**

APPENDIX L

INTER-ITEM CORRELATIONS FOR EACH MULTI-ITEM MEASURE

INTERPERSONAL RELATIONSHIP QUALITY

	IRQ1	IRQ2	IRQ3	IRQ4	IRQ5
IRQ1	1.0000				
IRQ2	.8516	1.0000			
IRQ3	.7872	.7476	1.0000		
IRQ4	.7884	.8196	.6940	1.0000	
IRQ5	.6702	.6641	.6952	.7199	1.0000
IRQ6	.7289	.7183	.7461	.7340	.7322
IRQ7	.7353	.7024	.7265	.6897	.6300
IRQ8	.6385	.6566	.6746	.6260	.5676
IRQ9	.7525	.7585	.7327	.7450	.6939
IRQ10	.7673	.7257	.6261	.7059	.6451
IRQ11	.7932	.7185	.7018	.6950	.5984
IRQ12	.7184	.7047	.8026	.6754	.7072
IRQ13	.6695	.6254	.7104	.6752	.6576
IRQ14	.6915	.6864	.6538	.7248	.6539
IRQ15	.6536	.6785	.8134	.6700	.6846
IRQ16	.6690	.6831	.7243	.6495	.6621
IRQ17	.7383	.7281	.7275	.6560	.6038
IRQ18	.7821	.7579	.7171	.7048	.6437
IRQ19	.7569	.7511	.8067	.7519	.7179
IRQ20	.6869	.6759	.7310	.6838	.6402
IRQ21	.7328	.7563	.7147	.7054	.6848

	IRQ6	IRQ7	IRQ8	IRQ9	IRQ10
IRQ6	1.0000				
IRQ7	.7471	1.0000			
IRQ8	.7175	.6834	1.0000		
IRQ9	.7693	.7821	.7768	1.0000	
IRQ10	.7211	.7381	.6767	.7290	1.0000
IRQ11	.7629	.7042	.6277	.7305	.7894
IRQ12	.8118	.7256	.6422	.6998	.7079
IRQ13	.7129	.6982	.5832	.7496	.6905
IRQ14	.7186	.7083	.5708	.7147	.7759
IRQ15	.7585	.6682	.6328	.7485	.6111
IRQ16	.7556	.7162	.6281	.7841	.6843
IRQ17	.7376	.6469	.6775	.7621	.7132
IRQ18	.7807	.6762	.6728	.7723	.7354
IRQ19	.7745	.7945	.6854	.8546	.7046
IRQ20	.7166	.6808	.6905	.7570	.7404
IRQ21	.7261	.7320	.6287	.7618	.7458

INTERPERSONAL RELATIONSHIP QUALITY (CONTINUED)

	IRQ11	IRQ12	IRQ13	IRQ14	IRQ15
IRQ11	1.0000				
IRQ12	.8190	1.0000			
IRQ13	.8136	.8061	1.0000		
IRQ14	.7849	.7727	.7795	1.0000	
IRQ15	.7033	.8458	.7359	.7833	1.0000
IRQ16	.7958	.8626	.7989	.7931	.8441
IRQ17	.7999	.7869	.7410	.7301	.7728
IRQ18	.8029	.7878	.7281	.7978	.7595
IRQ19	.7866	.8542	.8420	.8345	.8596
IRQ20	.7349	.7618	.7234	.7795	.7999
IRQ21	.7473	.7528	.6861	.7814	.7870

	IRQ16	IRQ17	IRQ18	IRQ19	IRQ20
IRQ16	1.0000				
IRQ17	.7870	1.0000			
IRQ18	.7781	.9225	1.0000		
IRQ19	.8567	.8380	.8438	1.0000	
IRQ20	.7439	.8413	.8020	.8175	1.0000
IRQ21	.7521	.7735	.7558	.7974	.8937

	IRQ21
IRQ21	1.0000

COLLABORATIVE WILLINGNESS

	CW1	CW2	CW3	CW4	CW5	CW6
CW1	1.0000					
CW2	.4803	1.0000				
CW3	.3653	.6798	1.0000			
CW4	.3056	.1500	.1978	1.0000		
CW5	.4450	.5263	.4184	.3688	1.0000	
CW6	.4214	.4300	.4137	.4793	.7010	1.0000

(CW7 and CW8 not included in the analysis due to missing values)

FELT INDEBTEDNESS

	FI1	FI2	FI3
FI1	1.0000		
FI2	.3300	1.0000	
FI3	.7630	.2406	1.0000

WARFARIN BELIEFS

	WB1	WB2	WB3	WB4	WB5
WB1	1.0000				
WB2	.6694	1.0000			
WB3	.5097	.7001	1.0000		
WB4	.7969	.6797	.6997	1.0000	
WB5	.7755	.6452	.6221	.8991	1.0000
WB6	.0017	.0853	-.0160	-.0392	-.0210
WB7	.3045	.2884	.3691	.3522	.2959
WB8	.5901	.6236	.6176	.6883	.6371

	WB6	WB7	WB8
WB6	1.0000		
WB7	-.1324	1.0000	
WB8	-.0064	.3224	1.0000

APPENDIX M

PILOT STUDY RESULTS

INTERPERSONAL RELATIONSHIP QUALITY (n = 22)

Scale Statistics:

- 21 items
- Rating Scale: 1=Awful, 2=Poor, 3=Fair, 4=Good, 5=Very Good, 6=Excellent, 7=Outstanding
- Possible Range = 21-147
- Mean = 133.556
- St. Dev. = 15.503
- Coefficient Alpha = .986

Item How would you rate the pharmacist on...?	Mean	St. Dev.	Alpha if Item Deleted
... how easy she is to talk to	6.273	.935	.986
... how she has your best interest in mind	6.318	.780	.985
... how she allows you to be yourself with her	6.318	.839	.985
... how sincere she is	6.546	.671	.986
... how trustworthy she is	6.546	.800	.985
... how complete she is in addressing your concerns	6.409	.796	.985
... how she asks if you have any questions	6.364	.848	.985
... how she trusts you in making decisions about your health	6.238	.868	.985
... how she believes what you say	6.318	.780	.986
... how she explains what is happening	6.318	.839	.985
... how she takes time to explain things to you	6.409	.734	.985
... how patient she is with you	6.409	.734	.985
... how relaxed she makes you feel	6.364	.848	.985
... how she shows concern for you	6.364	.902	.985
... how she respects you as a person	6.364	.902	.985
... how she listens to what you have to say	6.454	.738	.985
... how comfortable she makes you feel sharing your deepest concerns with her	6.364	.902	.985
... how she tries to understand your feelings	6.409	.734	.985
... how she respects what you say	6.364	.902	.985
... how special she makes you feel	6.182	1.006	.986
... how she puts your best interest first	6.227	.922	.985

Rating Scale: 1=Awful, 2=Poor, 3=Fair, 4=Good, 5=Very Good, 6=Excellent, 7=Outstanding

FELT INDEBTEDNESS (n = 22)

Scale Statistics:

- 3 items
- Frequency Scale: 1=Never, 2=A Little, 3=Sometimes, 4=A Lot, and 5=Always
- Possible Range = 3-15
- Coefficient Alpha = .625
- Mean = 12.711
- St. Dev. = 2.227

Item How often do you feel like you...?	Mean	St. Dev.	Alpha if Item Deleted
... want to repay the pharmacist in some way	4.048	1.133	-.048
... want to thank the pharmacist	4.864	.351	.862
... owe the pharmacist something in return	3.800	1.219	.012

Removing the second item from the analysis:

Scale Statistics:

- 2 items
- Possible Range = 2-10
- Pearson Correlation Coefficient = .759 (1-tailed, $p < .01$)
- Mean = 7.848
- St. Dev. = 2.206

COLLABORATIVE WILLINGNESS (n = 22)

Scale Statistics:

- 8 items
- Frequency Scale: 1=Never, 2=A Little, 3=Sometimes, 4=A Lot, and 5=Always
- Possible Range = 8-40
- Mean = 30.497
- St. Dev. = 6.776
- Coefficient Alpha = .835

Item How likely are you to...?	Mean	St. Dev.	Alpha if Item Deleted
... talk to the pharmacist when you are bothered by your warfarin	4.250	1.230	.807
... talk to the pharmacist when you are bothered by other health concerns	3.864	1.125	.809
... talk about things other than your health with the pharmacist	3.364	1.293	.820
... admit to the pharmacist when you forget to take your warfarin	4.579	.890	.830
... ask for help from the pharmacist when you need it	4.364	1.093	.822
... ask the pharmacist when you have a question	4.454	1.011	.801
... talk to the pharmacist when you are unhappy with your warfarin	2.800	1.639	.822
... tell the pharmacist when you don't agree with her	2.823	1.488	.816

Frequency Scale: 1=Never, 2=A Little, 3=Sometimes, 4=A Lot, and 5=Always

WARFARIN BELIEFS (n=22)

Scale Statistics:

- 8 items
- Agreement Scale: 1=Disagree, 2=Agree a Little, 3=Agree Somewhat, 4=Agree A Lot, 5=Agree Completely
- Possible Range = 8-40
- Mean = 33.715
- St. Dev. = 4.513
- Coefficient Alpha = .700

Item I believe...	Mean	St. Dev.	Alpha if Item Deleted
... my need for warfarin is a serious matter.	4.773	.528	.654
... it is critical for me to keep taking warfarin.	4.773	.429	.660
... without warfarin, I will get a blood clot.	4.636	.581	.632
... warfarin is important to my health.	4.727	.456	.649
... warfarin helps to prevent life-threatening problems for me.	4.636	.581	.632
... taking warfarin can cause problems for me.	2.700	1.665	.814
... I think about my need to take warfarin more than other health concerns.	3.136	1.552	.710
... I will always need to take warfarin.	4.333	1.168	.614

Agreement Scale: 1=Disagree, 2=Agree a Little, 3=Agree Somewhat, 4=Agree A Lot, 5=Agree Completely

APPENDIX N

DESCRIPTIVE STATISTICS OF VARIABLES COLLECTED IN THE FINAL SURVEY (FOR FUTURE RESEARCH)

DESCRIPTIVE STATISTICS

Table 17 - Self-Reported Continuity of Care

	Frequency	Percent
Yes	123	71.1
No	38	22.0
Missing	12	7.0
Total	173	100.1†

† Total not equal to 100% due to rounding

Table 18 - Contact Intensity

	Frequency	Percent
In Person	124	71.7
Over the Telephone	32	18.5
Other	14	8.1
Missing	3	1.8
Total	173	100.1†

† Total not equal to 100% due to rounding

Table 19 - Length of Enrollment

	Frequency	Percent
Less than 1 month	2	1.2
1-3 months	8	4.6
4 months to 2 years	65	37.6
More than 2 years	96	55.5
Missing	2	1.2
Total	173	99.9†

† Total not equal to 100% due to rounding

Table 20 - Respondent Gender

	Frequency	Percent
Male	150	86.7
Female	20	11.6
Missing	3	1.8
Total	173	100.1†

† Total not equal to 100% due to rounding

Table 21 - Respondent Age

	N	Mean	Standard Deviation	Minimum	Maximum
Age	170	68.22	8.71	43	89

Table 22 - Items Measuring Patient Attitudes Toward Student Participation in Clinic A

How much do you feel that....?	N	Mean	Stand. Dev.	Min.	Max.
...you enjoy talking with the pharmacy students who come to this clinic.	116	4.12	1.04	1	5
...your time is well spent when the students talk to you.	117	4.06	0.99	1	5
...the students add to the care you get at this clinic.	115	4.03	1.04	2	5
...talking with the students at this clinic is a bother for you.	111	4.60 ‡	0.97	1	5
...you help the students to learn.	114	3.98	0.95	2	5
...if you could, you would choose not to talk with the students.	112	4.62 ‡	0.85	1	5
...when talking to the students, you try to make it easier for them.	116	4.25	0.98	1	5
...the students help you in ways that the clinic pharmacist does not.	105	1.94	1.17	1	5

‡ Mean score is reversed coded.

APPENDIX O

ANALYSIS TO TEST THE VALIDITY OF REGRESSION ASSUMPTIONS

Residual Analysis

Tests of the assumptions underlying regression analysis were conducted for each of the three regression equations. The analysis of the residuals support the validity of the assumptions. The results of the regression analyses therefore are considered to be appropriate.

Linearity of the Regression Models

For each equation, scatterplots of the standardized residuals with the continuous indendent variable(s) were created to determine whether the residuals are randomly distributed around zero. Refer to Figures 6 to 10 for the scatterplots. No systematic patterns are apparent, although in some cases, data points are shown to cluster on the upper end, revealing some ceiling effect with the independent variable scales.

Equality of Variance

The assumption of equality of variance was tested using the same scatterplots. The distribution around zero, again appears to be mostly random, indicating this assumption is not violated (See Figures 6 to 10).

Figure 6 Scatterplot of Standardized Residuals Felt Indebtedness (SUMFI) with Warfarin Beliefs (SUMWB)

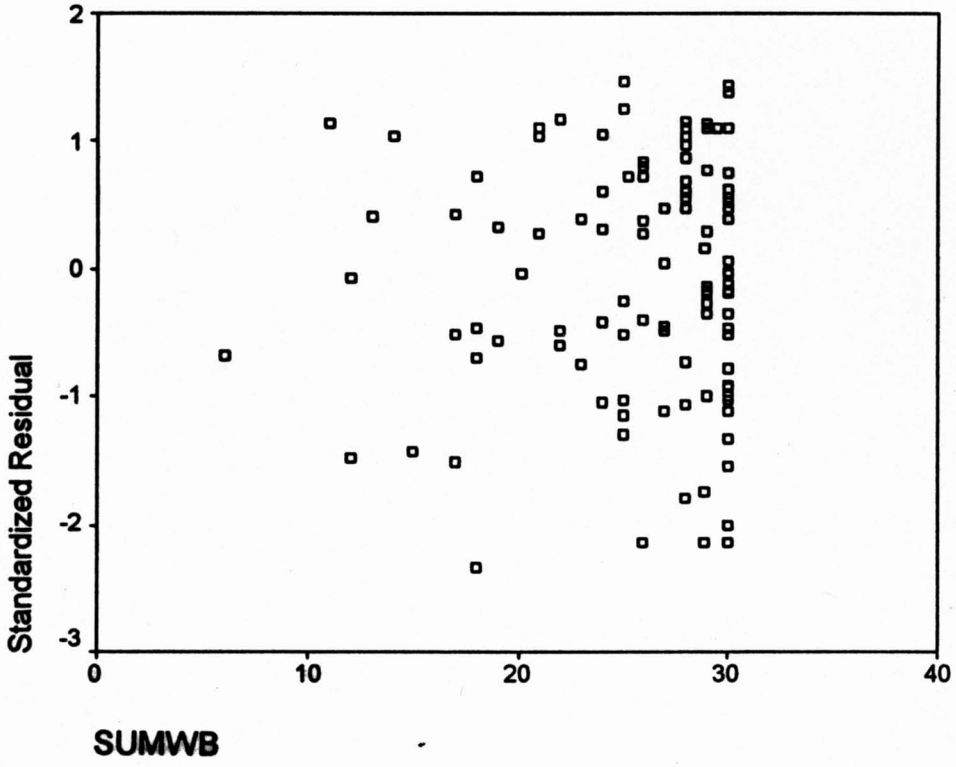


Figure 7 Scatterplot of Standardized Residuals Felt Indebtedness (SUMFI) with Interpersonal Relationship Quality (SUMIRQ)

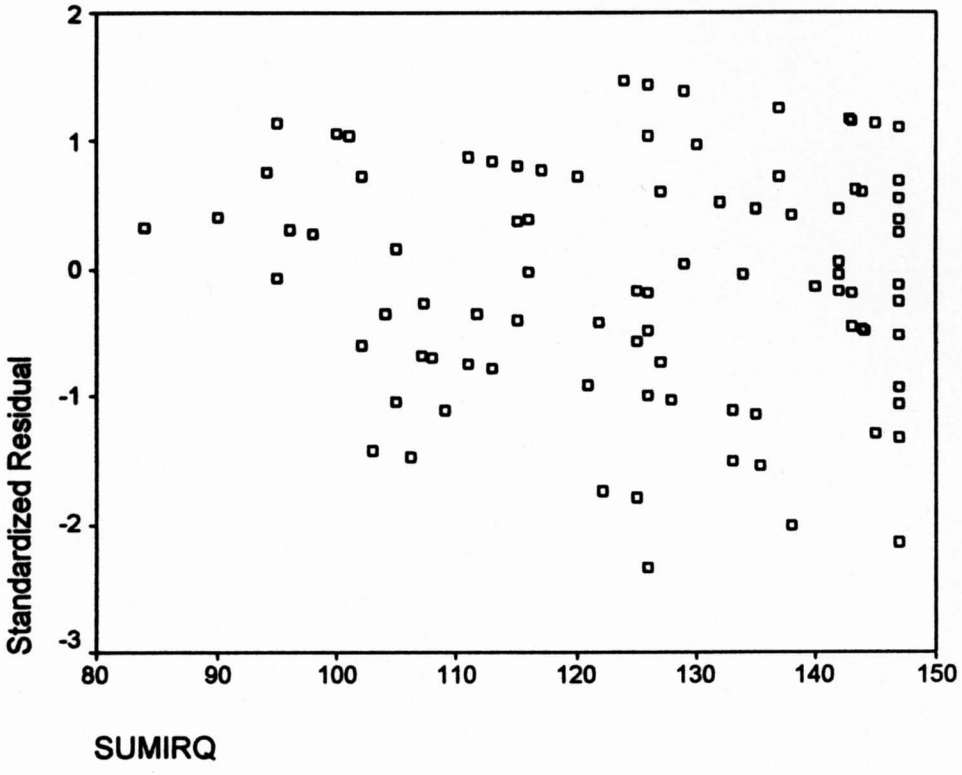


Figure 8 **Scatterplot of Standardized Residuals Collaborative Willingness(SUMCW) with Warfarin Beliefs (SUMWB)**

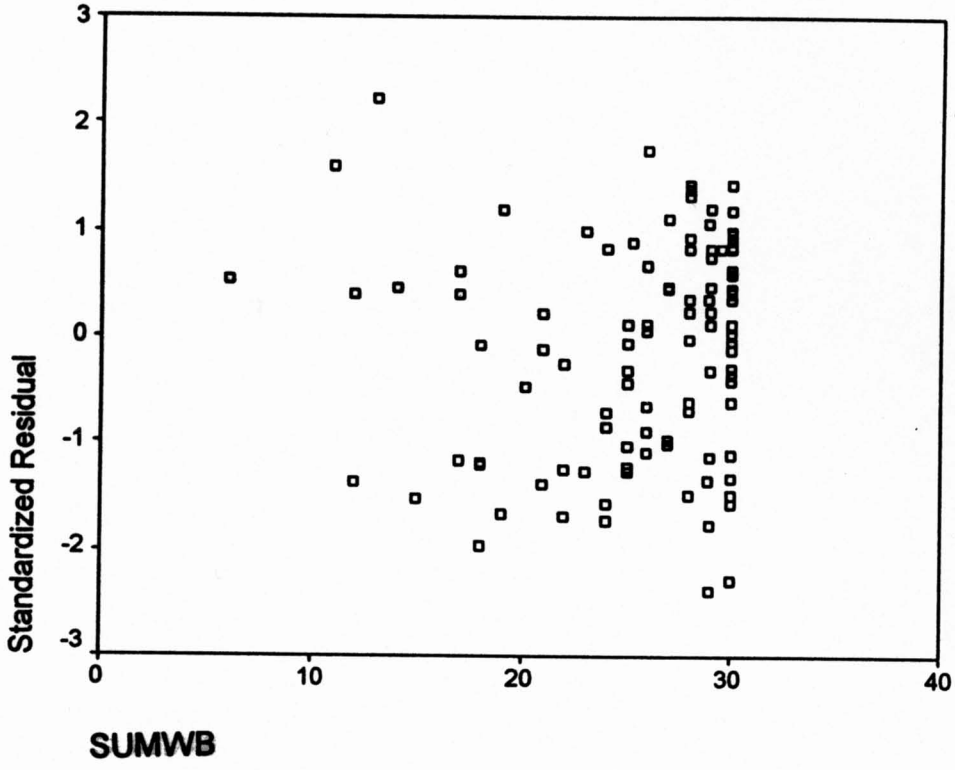


Figure 9 **Scatterplot of Standardized Residuals Collaborative Willingness (SUMCW) with Interpersonal Relationship Quality (SUMIRQ)**

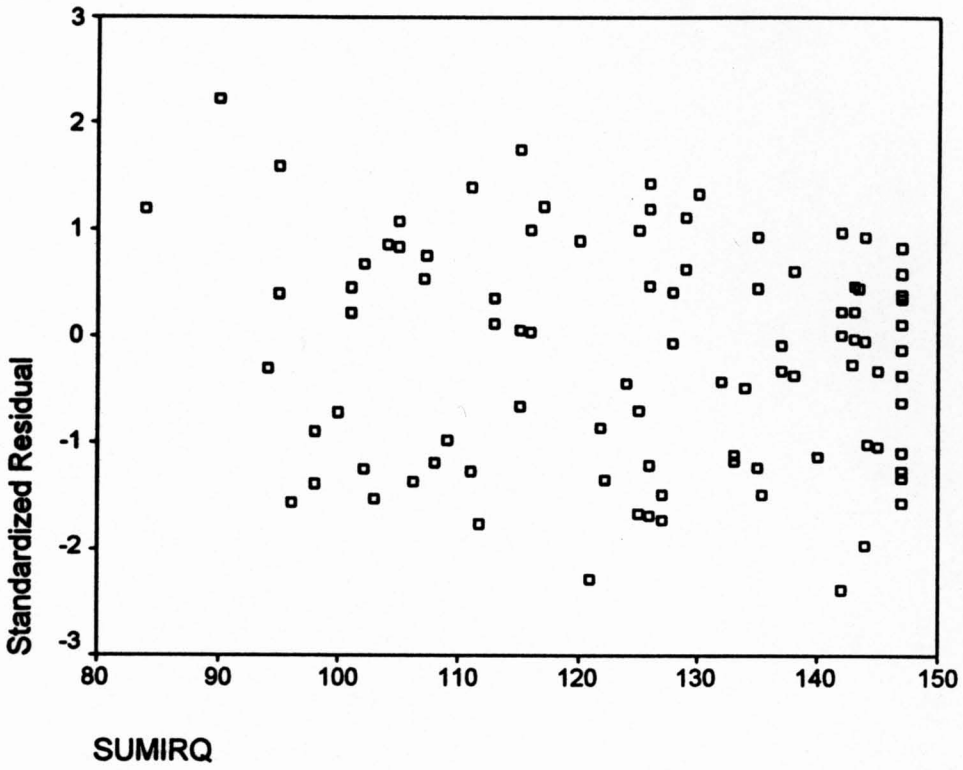
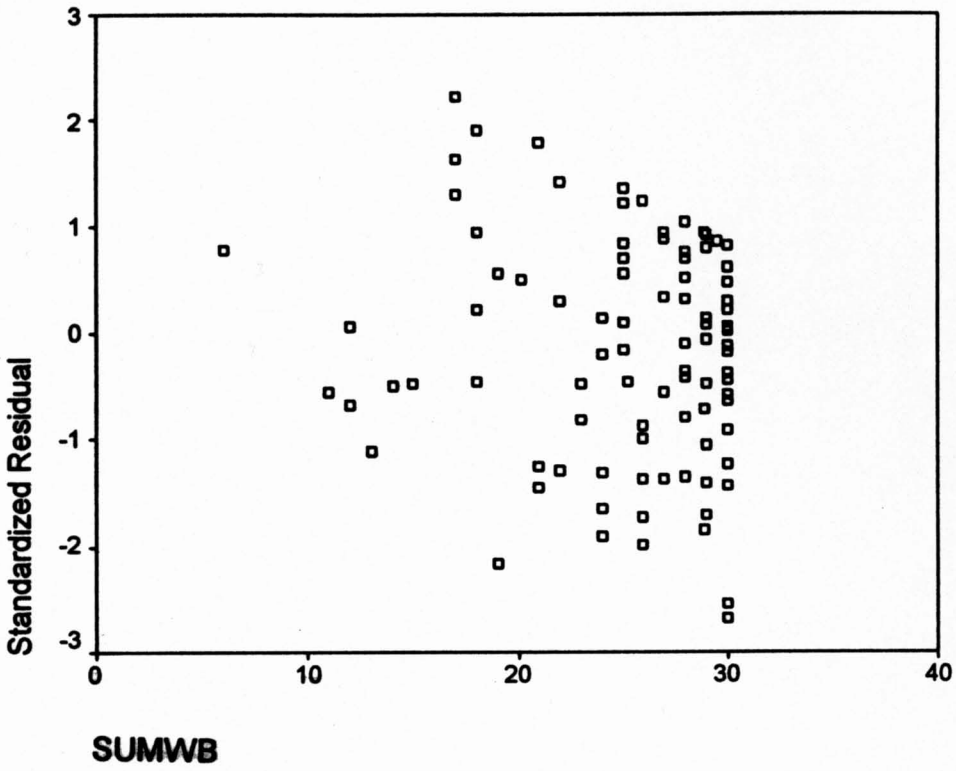


Figure 10 Scatterplot of Standardized Residuals Interpersonal Relationship Quality (SUMIRQ) with Warfarin Beliefs (SUMWB)



APPENDIX P

TEST OF RECENCY EFFECT

Table 23 - Comparison of Early and Late Responders Across Four Survey Items

Item	Sample	Mean	Std. Dev. *	t	Sig. (2-tailed)
CW3	1	3.35	1.60	1.158	.254
	2	2.80	1.40		
FI3	1	3.10	1.55	-.028	.977
	2	3.11	1.33		
MUP8	1	4.05	1.19	.447	.658
	2	3.85	1.56		
IRQ8	1	6.20	0.90	1.62	.113
	2	5.64	1.22		

* All variances unequal (Levene's Test of Equality of Variance not significant)
Sample 1: First twenty surveys returned
Sample 2: Last twenty survyes returned

APPENDIX Q

COMPARISON OF SURVEY RESPONDENTS (RETAINED V. DELETED)

Table 24 - Independent Sample T-Test - Comparing Age of Respondents Retained v. Deleted

Status	N	Mean Age	Std. Dev.	t	Sig (2-tailed)
Retained	120	67.44	8.34	-1.739	0.86
Deleted	50	70.10	9.37		

Table 25 - Gender by Retained/Deleted Status (n =170)

	Retained	Deleted	Total
Male	107 (106.8)*	43 (43.2)	150 (150.0)
Female	14 (14.2)	6 (5.8)	20 (20.0)
Total	121 (121.0)	49 (49.0)	170 (170.0)

Pearson Chi Square: .015, Asymp. Sig (2-sided) = .902
* Numbers in parentheses are expected counts

Table 26 - Clinic Site by Retained/Deleted Status (n =173)

	Retained	Deleted	Total
Clinic A	101 (98.7)*	39 (41.3)	140 (140.0)
Clinic B	21 (23.3)	12 (9.7)	33 (33.0)
Total	122 (122.0)	51 (51.0)	173 (173.0)

Pearson Chi Square: .930, Asymp. Sig (2-sided) = .335
* Numbers in parentheses are expected counts