Patient attitudes toward self-medication during hospitalization

Elizabeth A. Reilly

Edith Cowan University

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Patient Attitudes Toward Self-Medication
During Hospitalization

Elizabeth Anne Reilly
School of Nursing
Western Australian College of Advanced Education
15th November 1989
Abstract

This study explored patient attitudes toward the behaviour of self-medication during hospitalization using Ajzen's and Fishbein's model of Reasoned Action (1980). The goal of Ajzen's and Fishbein's model is to predict and understand an individual's behaviour. This study adapted the model and identified seven variables which were thought to influence a person's intention to self-medicate. Two hypotheses were developed based upon the relationships between the variables in the model and their predicted effect upon the behaviour of self-medication. Correlational statistics were performed to determine the general relationships between a subject's specific and general attitudes toward the behaviour of self-medication, their intentions to self-medicate both during hospitalization and at home, the subject's specific and general subjective norms toward the behaviour of self-medication, and their adherence to and knowledge of current medical regime. In addition, the suitability of Ajzen's and Fishbein's model to nursing research was investigated.

Forty adults, twenty female and twenty male who met the inclusion criteria participated in the study. They were required to complete an attitudinal questionnaire including a sub-section on patient knowledge of current medications. The
Data were collected over a six week period in a busy Perth metropolitan medical practice. The subjects were required to complete the questionnaire based upon past experience as a patient in an acute-care setting. The study found that there was a strong and positive correlation between patients' general attitudes toward the behaviour of self-medication and their intentions to self-medicate during hospitalization \((r=0.81)\). A 0.05 alpha level of significance was used for this study. Similarly there was a positive correlation between patients' subjective norms and their intention to self-medicate during hospitalization \((r=0.52)\). These findings support hypothesis one of the study which states, that the intention to self-medicate during hospitalization will be influenced by the attitude a patient holds toward self-medication, and their perception of the beliefs of others concerning the behaviour of self-medication. However, the findings of this study did not support the second hypothesis which stated that the intention to self-medicate during hospitalization would be influenced by the patient's knowledge level of his or her prescribed medications. Further investigation is required before conclusive evidence can be drawn to support or disprove the second hypothesis. Overall, the study suggested that patients do wish to participate in self-medication programs during hospitalization and furthermore, it is one avenue by which the patient can become more involved and gain greater control in their own healthcare.
"I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text."
Acknowledgements

Thank-you to Dr Sybe Jongeling and Dr Stephen Hodby for all the time and consideration you gave me during the course of completing this research thesis.
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Patient Attitudes Toward Self-Medication
During Hospitalization

Introduction

In today's changing healthcare environment increased emphasis is placed on self-direction and direct involvement of patients in their own care. This increased personal interest in healthcare extends into the hospital setting. A self-medication program in which patients can manage their own medication provides an opportunity for self-direction and provides the patient with evidence of their capabilities and readiness to assume responsibility for self-care.

Previous studies have suggested that greater personal control increases perceptions of wellbeing (Rodin & Langer, 1977; Schulz, 1976) and decreases negative responses to healthcare procedures (Johnson & Leventhal, 1974; Johnson, Rice, Fuller & Endress, 1978). However additional research contradicts such findings and suggests that patients when in the healthcare arena do not desire this control over their healthcare (Krantz, Baum & Wideman, 1980; Smith, Wallston, Wallston, Forsberg & King, 1984; Wallston et al., 1983). Despite such contradiction, a patient in a hospitalized environment, whether they approve or not, will lose control over what happens to them immediately upon entry to the institution. Their independence is handed over to the medical, nursing and para-medical staff.
Administration of daily medications is one responsibility that is taken away from the patient. Previously independent people have to relinquish control of their daily medication regimen but are then expected to return to self-care immediately upon discharge. Self-medication not only maintains patient independence but also provides teaching opportunities for the nurse in regard to the patient's knowledge of medication (MacGuire, 1987; Schwartz, 1975).

Self-medication is not a new concept. It has been utilized to a limited extent in geriatric, obstetric, pain control and rehabilitation programs. In spite of strong support in the literature, self-medication programs are not yet widely utilized in acute-care settings. Hence there are very little data available to consult in this area. Even more important however, is the fact that at this stage there is little evidence to suggest whether the patient wishes to participate in such programs. Before a self-medication program can be considered the healthcarer needs to be acquainted with the patient's feelings and reactions toward the introduction of such a program.

The aim of this study was to investigate patient attitudes toward the behaviour of self-medication. In an attempt to maintain unbiased attitudes, the study was performed as an ex-post facto research design, whereby subjects attending a busy Perth metropolitan surgery were asked to complete the
questionnaire based on their past experience as a patient in a hospital setting.

The questions for study were as follows:

(a) What are the attitudes of patients toward self-medication during hospitalization?

(b) What is the relationship between patient attitudes toward self-medication, their associated knowledge of the medication, and their intention to comply with oral self-medication?

Literature Review

Various self-medication programs have been documented in the literature over the past twenty years. The majority of these programs have been limited to studies of patients in the obstetric (Parnell, 1959; Anderson & Poole, 1983), geriatric (Brock, 1979), pain control (Coyle, 1979; Miller, Wikoff, McMahon, Garrett & Ringel, 1984), and rehabilitative (Johnson et al. 1970; Thompson & Ellenberg, 1987) settings.

Studies in the past have suggested that patients know very little about the drugs they take and more significantly it has been suggested that patients do not seem to connect the pattern of drug taking in hospital with possible continuation at home (McGuire, Preston & Pinches, 1987; Bliss, 1981). Much of the leading research has been conducted in the obstetric setting.

An attitude study conducted by Mynick (1981),
surveyed a group of multipara females to determine whether they preferred the routine of self-medication as opposed to nurse administered medications during hospitalization. It was concluded that the multiparas preferred bed-side medication by a five to one margin over their previous experiences with nurse-administered medications (Mynick, 1981, p.199). These findings were replicated in later studies by Anderson and Poole (1983), and by Jankowski and Meers-Wells (1987). In addition Anderson and Poole (1983), found that the standardizing of patient medication reduced the cost of inpatient and discharge medications by an average of forty percent for each patient. It was also found that nursing time related to medication administration had not been reduced as had been hoped. More importantly this time was now being used to educate the patients about their medications rather than in the distribution of them. Anderson and Poole (1983), commented that the patients "appreciated being treated as responsible adults rather than helpless invalids" (p.1180). Jankowski and Meers-Wells (1987), found that 63 percent of the sample surveyed felt that a self-medication program made them feel independent and in addition made it easier for them to continue taking their medications at home.

Other studies have focused on drug compliance and patient knowledge of medical regimen. Pre and post discharge interviews
were used to determine patient compliance in a study conducted by Bradshaw (1987). In this study Bradshaw found that compliance with medication was seen to increase when patients had been involved in self-medication programs in hospital. Similar findings by Hill (1986), had indicated that to ensure drug compliance patient teaching needed to go beyond merely accurate information. Hill stated "a far greater challenge for the nurse is to motivate the patient to participate in his own treatment" (Hill, 1986, p.50).

Compliance has always been a difficult concept to test in research. The difficulty lies in the researcher's ability to measure compliance and hence research in this area is limited.

A study conducted in a rehabilitation unit suggested that, prior to discharge, patients rarely knew the names of their medication, why medications were changed during hospital stay or what to expect from the medications at the time of discharge (Thompson & Ellenberg, 1987). These findings support a previous study conducted by Leary, Vesella and Yeaw (1971), who in a survey of 267 inpatients and outpatients assessed their knowledge of medication. Eighty three and a half percent scored in the "least informed" or "less informed" categories of their questionnaires when it came to knowledge of their medications, purpose, side-effects, schedule and precautions (Thompson & Ellenberg, 1987, p.25). Such research has indicated that patients have a poor knowledge base of their medical regimen.
Limited study has taken place in the general ward setting. One study conducted on two surgical wards at Taranaki Base Hospital in New Zealand concluded that patients benefitted from the self-medication program that they have run since March 1985. Scrivin (1987), believed that nurse-administered medication was unnecessary in most cases and that the patient usually had their own medication schedule, usually at times convenient to themselves (Scrivin, 1987, p.25). In this program the nurse is legally responsible for signing the medication chart, denoting that the patient had self-medicated or had been observed taking the correct medication. The drawback in Scrivin's study is that it is not supported by any statistical evidence.

Therefore, the literature reported so far focuses largely upon the trials of self-medication programs within specialized care-settings. This indicates the need for further study of self-medication in general hospital populations and the attitude of patients toward such programs.

The behaviour of self-medication and the attitudes of patients toward this behaviour can be explained within the context of a theoretical model. The theoretical framework chosen for this study is Ajzen's and Fishbein's Theory of Reasoned Action.
Theoretical Rationale

The Theory of Reasoned Action is based on the assumption that human beings are usually quite rational and make systematic use of information available to them. The ultimate goal of the model is to predict and understand an individual's behaviour. According to the theory, overt behaviour is a function of one's intention to perform the behaviour. This behavioural intention, in turn, is determined by two additive components:

1. The attitude towards the behaviour and
2. Subjective norms

The attitude toward the behaviour is the individual's positive or negative evaluation of performing the behaviour. The second determinant of intention is the person's perception of the social pressures put on him to perform or not to perform the behaviour in question (Ajzen & Fishbein, 1980). The model is described in Figure 1.

Figure 1

Fishbein's Model of Reasoned Action

PERSONAL BELIEFS —— ATTITUDE TOWARD THE BEHAVIOUR

PERCEIVED BELIEFS —— SUBJECTIVE NORM OF OTHERS

INTENTION —— BEHAVIOUR

(Ajzen & Fishbein, 1980, p.8)
The assignment of relative weights to the two components of intention greatly increase the explanatory value of the theory. Thus the model can be represented in terms of a multiple regression equation:


 Whereby, $B$ = overt behaviour

$BI$ = behavioural intention

$Ab$ = attitude toward performing the behaviour, $B$

$SNb$ = subjective norm regarding the behaviour, $B$

$W1$ and $W2$ = empirically determined weights reflecting the relative importance of each component in determining $BI$

$\approx$ approximately equal (Ajzen & Fishbein, 1980)

The Theory of Reasoned Action has been tested in a wide range of research studies. It has been used to explain a variety of behaviours and health promoting intentions including family planning (Fishbein, Jaccard, Davidson, Ajzen & Loken, 1980; Jaccard & Davidson, 1972, 1975), weight loss (Saltzer, 1978, 1980; Sejwacz, Ajzen & Fishbein, 1980), and adult exercise, stress management and weight control (Pender & Pender, 1986). Nursing studies have also based their research on Fishbein's model of reasoned action. In a study conducted by Miller et al (1984), relationships between demographic and medical variables, attitudes, perceived beliefs of others, and intentions toward medical regimen adherence and actual post-hospitalization regimen adherence were investigated (Miller, Wikoff, McMahon,
Garrett & Ringel, 1984, p.268). In the course of this study 112 persons recovering from a first time myocardial infarction were assessed at two points in time regarding their attitudes, perceived beliefs of others, and intentions toward prescribed medical regimen. Assessment one took place while the subjects were still hospitalized and assessment two took place six to nine months post-hospitalization. Results from this study suggested that, during hospitalization, patients' attitudes and perceived beliefs of others were strong indicators of intentions to adhere to the medical regimen, but they were not indicators of actual adherence post-hospitalization. Post-hospitalization, patients' attitudes and perceived beliefs of others were strong indicators of actual regimen adherence (Miller, Wikoff, McMahon, Garrett & Ringel, 1984). These results were similar to an earlier study conducted by Schmidt (1980).

Other studies have looked at the applicability of Fishbein's model to the field of nursing research. Austin, McBride and Davis (1984), assessed parental attitudes and adjustment to epilepsy for fifty parents of children aged six to fourteen with epilepsy, using Fishbein's Expectancy-Value Model of Attitude. It was found that there was a strong positive relationship between parental attitude and adjustment for the mothers but not for the fathers. However, such studies are limited and no firm conclusions as to the suitability of such a model to nursing research have been made. In addition, other research
has indicated that extensions made to the model help to improve its predictive power. Bentler and Speckart (1979, 1981), showed that the inclusion of a self-report measure of past behaviour improved the model's prediction of behavioural intention. This has been further supported by Fredericks and Dossett (1983), as well as Budd, North and Spencer (1984). Thus, although the robustness of the model in predicting behaviour from behavioural intention, attitudes and subjective norm has been amply demonstrated by empirical research (Ajzen & Fishbein, 1980), some extensions of the model using "external variables" have provided better predictions. Hence in the present study two extensions to the basic model have been proposed (figure 2). The two variables, adherence to medical regimen and knowledge of medical regime, have been shown to be strongly related to medication practices as documented in the literature review for this study. Thus, by including them in the model their predictive power and in turn their relationship to intention can be determined. Thus a further objective of this study was to investigate the suitability of Ajzen's and Fishbein's model to nursing research. In addition, the importance of the two extra variables, adherence to and knowledge of medical regimen, to the model and in the behaviour of self-medication was of interest.

Ajzen's and Fishbein's model is based on their Theory of
Reasoned Action. According to this theory, individuals are more likely to engage in health behaviours if such actions are seen as instrumental in achieving desired consequences and are considered worthwhile by persons or groups the individual wishes to please (Pender & Pender, 1986, p.15). In this study the health behaviour is self-medication during hospitalization and in addition its relationship to medication practices at home. The model for this study is illustrated in Figure 2.

**Figure 2**

*Hypothesized Model of Intentions to Self-Medicate During Hospitalization based on Attitudes and Subjective Norms toward this Behaviour*
Hypotheses for Study

There were two hypotheses for study. These also formulated the objectives for study.

(1) The intention to self-medicate during hospitalization will be influenced by the attitude a patient holds toward self-medication and the patient's perception of the beliefs of others concerning the behaviour of self-medication.

(2) The intention to self-medicate during hospitalization will be influenced by the patient's knowledge level of his or her prescribed medications.

Definitions

**Attitude:** This is the person's positive or negative evaluation of performing the behaviour. In the model it is expressed as both an individual's specific and general attitude (ie. the global expression of an attitude) toward the behaviour of self-medication.

**Self-Medication:** This refers to a system used within a institutionalized healthcare setting that places the patient in charge of administering their own medication. This study was concerned with self-administration of those oral medications taken by the patient on a long-term basis at home. Subjects chosen to participate in the program were selected based upon a set of strict inclusion criteria as documented on page 16. In a hospital setting, medical permission to allow participation in the program would be required for each subject.

**Oral:** Taken by mouth.
Subjective Norm: The subjective norm includes the person's perception of how significant others want to see the person carry out a behaviour and the extent to which the person wishes to comply with the significant others. This refers to both an individual's specific and general subjective norms toward the behaviour of self-medication. The significant others may include the wishes of the spouse, the children, the doctor, the nurse or even a minister of religion.

Knowledge: This refers to the patient's ability to perceive with certainty information about oral medication. This includes information regarding name, dosage and frequency of administration of the prescribed medication.

Adherence: This refers to the patient's ability to follow strict medical regimen as set down by the medical practitioner.

Variables

There were four independent variables identified within the model. They included:-

(1) Patient attitudes (both specific and general)
(2) Subjective norms (both specific and general)
(3) Patient knowledge of prescribed medication
(4) Patient's previous adherence to medical regime

The dependent variable for study was the patient's intentions to self-medicate during hospitalization.
Assumptions

There were two basic assumptions in the study. They were:

(1) That all subjects chosen to participate in the study responded honestly and thoughtfully to the questionnaire.

(2) That ethnicity had no effect on a subject's behaviour toward the practice of self-medication.

Methodology

The study followed a correlational design with the aim to test the relationship between the variables in the model. The relationships between intentions to self-medicate, attitudes toward self-medication, subjective norms toward self-medication, and knowledge of and adherence to medical regimen were of interest. These relationships are illustrated in figure 2.

A pilot study was conducted using three participants in an attempt to identify difficulties encountered by respondents, and to determine the suitability and content validity of the questionnaire as an instrument of measurement. Only minor alterations were made to the questionnaire before the final version of the instrument was printed. An area of concern for the subjects was that if they were very ill in hospital they did not think it would be wise for them to be in charge of their own medications. It was then made clear to all participants that a self-medication program would only be applicable to those patients who were well enough to participate in such a program and who demonstrated responsibility in doing so.
The questionnaires were then given out to patients at a Perth metropolitan medical practice. The study was in the form of an ex-post facto research design, where the patients' were asked to complete the questionnaire based on their past experiences as a patient in hospital. Data were collected at only one point in time from each participant in the study. Collectively it took six weeks to gather all of the data. Informed verbal consent was obtained from each participant prior to his or her involvement in the study. Names were only required from those participants over the age of sixty-five in order for them to complete the mental status questionnaire (Appendix B). However, confidentiality was maintained through the use of a third person who worked for the medical practice and mediated between the participant and the interviewer. It was the third person who had access to the patient files and who validated information given by the subject to the interviewer. The researcher acted as the sole interviewer for this study. The subjects were aware of their right to withdraw from the study at any time during the interview if they so desired. Following data analysis the questionnaires were destroyed.

Study Population

A busy Perth metropolitan medical practice was chosen as the setting for data collection to take place. The surgery provided a pool of subjects who were likely to be administering some form of oral medication on a long-term basis, and in addition, had experienced hospitalization at some stage in the previous
five years. Geographically the surgery was situated in an older, well established suburb of Perth, Western Australia. It was located near two major metropolitan public hospitals and several retirement homes. It was also close to two large tertiary institutions of Perth and serviced many of the students living nearby in student accommodation. Thus the weight of the sample was drawn from either end of the age continuum.

Sample Population

A convenience sample of forty subjects, twenty male and twenty female volunteered to participate in the study. In order to participate in the study the subject must have met the specified criteria outlined in the section below. The sampling technique was in the format of "first come, first served."

Criteria for Inclusion

(1) The subject must have been 18 years of age or older.
(2) If aged 65 years or over the subject must have completed a mental status questionnaire and attained an acceptable score as outlined in Appendix B.
(3) The subject must have been able to converse in and understand spoken and written English.
(4) The subject must not have had any physical or mental impairment inhibiting them from participation in a self-medication program.
(5) The subject must have been willing to participate in the study and have been allowed to withdraw at any time.
(6) The subject must have been taking prescribed oral medication on a long-term basis at home at the time of the interview.

(7) The subject must have been hospitalized at least on one occasion during the past five years.

Data Collection

Subjects who were chosen to participate in the study were asked to complete the questionnaire administered by the interviewer (Appendix A).

Instruments

(1) Questionnaire

The questionnaire was divided into three sections:

(a) Collection of demographic data.

(b) Attitude and subjective norm testing with the use of semantic differential scaling. In this type of scaling the response to each question was scored from a value of (-3) to a value of (+3). Intentions toward self-medication were scored in a similar fashion. This was the method developed by Ajzen and Fishbein (1980). The questionnaire was constructed along similar lines to Ajzen and Fishbein's questionnaire in order to test the Model of Reasoned Action. Item 2 in the questionnaire evaluated a subject's general attitude towards the behaviour of self-medication during hospitalization (Appendix A). While items 3, 4, 5 and 6 matched up with items 7, 8, 9 and 10 to evaluate the subject's specific attitudes toward a self-medication program.
Item 11 of the questionnaire evaluated a subject's general subjective norm towards the behaviour of self-medication during hospitalization. While items 12, 13, 14 and 15 of the questionnaire matched up with items 16, 17, 18 and 19 to evaluate a subject's specific subjective norms towards the behaviour of self-medication during hospitalization. Items 20 and 21 evaluated the subject's intention to self-medicate during hospitalization, while items 22 and 23 evaluated their intention to self-medicate at home. Finally items 24, 25, 26 and 27 evaluated a subject's adherence to medical regime. The reliability of this questionnaire is dependent on the reliability of Ajzen's and Fishbein's theory (1980), while the validity is dependent on the content analysis conducted in the pilot study. Further refinement of the tool will be possible with additional study in the future.

(c) Knowledge of prescribed medication was evaluated in the following format. Each subject was required to complete a table in which they were asked to enter the medication that they were currently administering, the dosage prescribed and the frequency of administration. These categories were chosen as they could be objectively evaluated in the marking process. The answers given by each subject were verified by the third person who had access to patient notes, and in turn, a percentage was given based on the correctness of the answers. Validity was once again achieved through content analysis in the pilot study.
(2) **Portable Mental Status Questionnaire**

Subjects who were sixty-five years and over were required to complete a mental-status questionnaire and achieve an adequate result before they could be included in the study. The score they obtained must have placed them into category one which represented those individuals with intact mental functioning (see Appendix B). This ten item questionnaire has been tested, standardized and validated. The reliability of this tool has been set at $r=0.82-0.83$ (Pfeiffer, 1975). This tool was used in an attempt to increase the validity of the study's findings. It had to be used with caution and discretion as it had the potential to offend the participating subjects. Therefore, the tool was instituted in the course of general conversation. Answers were later checked with the third person who had access to patient information. All subjects were made aware that the tool was a simple way of assessing those subjects who were suitable for the study and those subjects who were not. Only two subjects were deleted from the study due to the fact that they did not meet the criteria as set down by the Portable Mental Status Questionnaire.

**Data Analysis**

Correlational statistics (the Pearson Product Moment Correlation Coefficient), were used to determine the relationship between the variables in the study and the strength
of this relationship. Multiple linear regression equations were used to develop a prediction equation between the variables. By assigning a weight to each of the independent variables (patient attitudes, subjective norms, adherence and knowledge level), based on their relationship to the dependent variable (intentions to self-medicate during hospitalization and at home), a prediction equation was determined. This prediction equation was a reflection of the best predictor or indicator variable in the study.

In addition, the SAS computer package was able to compare every variable in the equation with every other variable which had not yet been entered into the equation through the use of the maximum R-squared improvement technique. If the addition of another variable in the equation improved the value of R-squared, this variable would be included in the prediction equation. Ultimately each variable's contribution to the equation and the significance of this contribution would be determined.

The alpha level of significance for this study was set at alpha = 0.05. Through analysis of the results by the above mentioned statistical methods, findings could be generalized and the study hypotheses reviewed.

In addition various descriptive methods were used to analyze the demographic data. These methods included graphical illustrations and frequency tables.
Results

The distribution of sex, age and number of hospitalizations in the previous five years for the sample under study is documented in tables 1-3 below.

Table 1

Age and Sex Distribution of Sample

<table>
<thead>
<tr>
<th>Age</th>
<th>18-35</th>
<th>35-50</th>
<th>50-65</th>
<th>over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>female</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 2

Sex Distribution and Number of Hospitalizations

<table>
<thead>
<tr>
<th>Number of Hospitalizations (previous 5 years)</th>
<th>1-2</th>
<th>3-5</th>
<th>&gt;5</th>
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</thead>
<tbody>
<tr>
<td>male</td>
<td>15</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>female</td>
<td>16</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3

Age of subjects and Number of Hospitalizations

<table>
<thead>
<tr>
<th>Age</th>
<th>1-2</th>
<th>3-5</th>
<th>&gt;5</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-35</td>
<td>10</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>35-50</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>50-65</td>
<td>6</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>over 65</td>
<td>13</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
From table 1 it is important to note that the sample was evenly distributed between the sexes. In addition the majority of the sample population was drawn from either end of the age continuum. That is, 35% of the sample were in the 65 years or over age category, 32.5% were in the 18 to 35 year age category while only 12.5% of the sample were in the 35 to 50 year age category. Tables 2 and 3 indicate that a large proportion of the sample (75.5%), had been hospitalized on only one to two occasions in the previous five years and that no subject participating in the study had been hospitalized on more than five occasions in the previous five years. Once again there was an even distribution of males and females in terms of number of hospitalizations experienced.

The results in table 4 (page 23), indicate that all correlations between the variables are positive. The most significant positive correlation (r=0.81), was between subjects' general attitudes toward self-medication during hospitalization and their intention to self-medicate during hospitalization. That is, their intention to carry out the behaviour of self-medication was based on their positive attitude toward such a behaviour. The results in the table also indicate that there is no significant correlation between subjects' knowledge of oral medication and their intention to self-medicate in hospital. Similarly, there is no indication of any correlation between subjects' adherence to medical regime at home and their intention to self-medicate during hospitalization.
Table 4

Means, Standard Deviations, and Zero-order Correlations (r)
Between all Variables in Model **

<table>
<thead>
<tr>
<th></th>
<th>GENATT</th>
<th>ATT</th>
<th>GENSUBN</th>
<th>GEN</th>
<th>SUBJ</th>
<th>NORM</th>
<th>INTENT</th>
<th>INTENT</th>
<th>INTENT</th>
<th>NORM</th>
<th>ADHERE</th>
<th>KNOWL</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENATT</td>
<td>1.00</td>
<td>0.51</td>
<td>0.56</td>
<td>0.35</td>
<td>0.81</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT</td>
<td>0.51</td>
<td>1.00</td>
<td>0.39</td>
<td>NS</td>
<td>0.42</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GENSUBN</td>
<td>0.56</td>
<td>0.39</td>
<td>1.00</td>
<td>0.39</td>
<td>0.52</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBJ</td>
<td>0.35</td>
<td>NS</td>
<td>0.40</td>
<td>1.00</td>
<td>0.43</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NORM</td>
<td>0.81</td>
<td>0.42</td>
<td>0.52</td>
<td>0.43</td>
<td>1.00</td>
<td>0.41</td>
<td>NS</td>
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<td>NS</td>
<td>NS</td>
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<td>1.00</td>
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</tr>
<tr>
<td>ADHERE</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KNOWL</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td>MEAN</td>
<td>3.72</td>
<td>12.2</td>
<td>1.82</td>
<td>13.2</td>
<td>3.92</td>
<td>3.12</td>
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</tr>
<tr>
<td>SD</td>
<td>5.00</td>
<td>15.3</td>
<td>1.60</td>
<td>11.9</td>
<td>3.06</td>
<td>2.34</td>
<td>2.65</td>
<td>16.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Legend see next page
**Legend**

**GENATT** : General Attitude : A subject's global expression of his or her attitude toward self-medication.

**ATT** : Attitude : A subject's specific attitude toward self-medication.

**GENSUBN** : General Subjective Norm : A subject's global expression of his or her subjective norms toward self-medication.

**SUBJNORM** : Subjective Norm : A subject's specific subjective norms toward self-medication.

**INTENTHO** : Intention to self-medicate during Hospitalization : A subject's intention to perform the behaviour of self-medication during hospitalization.

**INTENTHM** : Intention to self-medicate at home : A subject's intention to continue to perform the behaviour of self-medication at home following discharge from hospital.

**ADHERE** : Adherence : A subject's adherence to medical regime at home and in hospital.

**KNOWL** : Knowledge : A subject's knowledge of his or her current medical regime.

**NS** : Not significant correlations

**SD** : Standard deviation
Diagrammatically, these correlations between the variables can be illustrated as in figure 3. This diagram is a revised edition of figure 2 (page 10), the hypothesized model for study.

In addition, it can be seen that there is a moderately strong and positive correlation between a subject's general subjective norms and his or her intention to self-medicate during hospitalization ($r=0.52$). Similarly, there is a moderately strong positive correlation between a subject's intention to self-medicate during hospitalization and their intention to
self-medicate at home following a self-medication program in hospital (r=0.41). A positive and moderately strong correlation also exists between a subject's specific attitude and general attitude toward the behaviour of self-medication (r=0.51), and a subject's specific and general subjective norms toward the behaviour of self-medication (r=0.39).

When the variables were placed into a multiple linear regression equation the general attitude (the global expression of a subject's attitude toward the behaviour of self-medication during hospitalization), and the general subjective norm (the global expression of a subject's subjective norms toward the behaviour of self-medication) proved to be the better predictors of intention to self-medicate during hospitalization (R=0.81). This prediction equation between the variables is illustrated in figure 4.

Figure 4

Best Indicators / Predictors of Intention to Self-Medicate During Hospitalization using Multiple Regression Analyses (R)
When the multiple linear regression test was used to estimate the increase in prediction power of intention to self-medicate during hospitalization (INTENTHO), using both the GENATT and GENSUBN variables, it was found that the multiple correlation using both variables to predict a subject's intention to self-medicate during hospitalization, was identical to the simple correlation between a subject's general attitude towards self-medication (GENATT), and their intention to self-medicate during hospitalization (INTENTHO). Thus, there was no improvement in predictive power by including the general subjective norm into the regression equation along with the general attitude.

Figure 5 illustrates the scores obtained by each subject in the knowledge questionnaire. A mean score of 77.25% was obtained by each subject. This mean score was relatively high and unexpected compared with previous research in the area. Eighty-two and a half percent of the sample achieved a success score of 75% or better. This unusually high score will be discussed further in the discussion section of the document.
Discussion

From the results presented in the previous section there is now adequate information to draw several tentative conclusions from the study. All correlations that were determined between the variables in the model were positive and moderately strong (table 4; figure 3). A strong positive correlation between general attitude toward the behaviour of self-medication and intention to self-medicate was present with $r=0.81$. Thus generally speaking, the study findings indicate that patients who have a more positive attitude toward self-medication are more likely to participate in a self-medication program if given the opportunity to do so, whereas those with a more negative attitude, are not likely to self-medicate in hospital or at home. A moderately strong and positive correlation was also found to exist between patients' subjective norms and intention to self-medicate with $r=0.52$. These results tend to indicate that patients' perceptions of what others think they should do plays an important role in their intention to self-medicate in hospital and at home.

Figure 3 illustrates that a positive correlation also exists between a person's specific attitudes and general attitudes toward self-medication ($r=0.51$). Similarly, there was a positive correlation between specific subjective norms and general subjective norms ($r=0.39$). Overall, it was found that a person's general attitude and general subjective norms were better indicators of intention to self-medicate than any other variable in the model.
A positive and moderately strong correlation existed between intention to self-medicate during hospitalization and intention to self-medicate at home ($r=0.41$). Thus, it can be suggested that a person who intends to participate in self-medication during hospitalization, will also be more likely to continue self-medication at home following discharge from hospital.

Hence, these findings support hypothesis one. That is, the intention to self-medicate during hospitalization will be influenced by the attitude a patient holds toward self-medication, and the patient's perception of the beliefs of others concerning the behaviour of self-medication.

It is also important to discuss the research question at this point. As stated previously the question can be divided into two sub-questions. Firstly, what are the attitudes of patients toward self-medication during hospitalization? From the present study the findings suggest that patients would view a self-medication program positively and would most likely wish to participate in self-medication if the opportunity arose. These findings are supported by earlier studies conducted by Mynick (1981), Anderson and Poole (1983), and Jankowski and Meers-Wells (1987). Secondly, the question focussed on the relationship between patient attitudes toward self-medication, their associated knowledge of the medication, and their intention to comply with oral self-medication. As previously indicated the study findings support hypothesis one, that is, a strong positive relationship does exist between a person's
attitude and their intention to comply with oral self-medication both during and following hospitalization. These findings support the basic relationships fundamental to Ajzen's and Fishbein's Theory of Reasoned Action (1980). From the study it can be suggested that the Model of Reasoned Action does seem useful and appropriate in nursing research. At this early stage evidence is not conclusive but further use and application of this model to nursing practice would be beneficial.

Thus far, hypothesis two cannot be supported by the study findings. There was no indication that any correlation existed between a patient's knowledge level of his or her own prescribed medication regimen and intention to self-medicate during hospitalization (table 4; figure 3). In addition to these findings, patient adherence to medical regimen pre-hospitalization did not have any significant correlation with a person's intention to self-medicate during hospitalization (table 4; figure 3). From such findings, it is suggested that a person's knowledge level of his or her prescribed medications and adherence to these medications have no influence upon whether a person wishes to participate in self-medication during hospitalization or not. Further research is required into this field of inquiry. Past studies have investigated the problem of poor patient knowledge in regard to oral medication (Mc Guire, Preston & Pinches, 1987; Bliss, 1981; Bradshaw, 1987; Hill, 1886; Thompson & Ellenberg, 1987). However, the
findings from this research indicate that the majority of subjects had a good basic knowledge of their own medications, with 82.5% of the sample achieving a success score of 75% or better (figure 5). Such findings contradict previous research. One explanation for this contradiction is the nature of the knowledge questionnaire used in the current study. In order for the information to remain objective, subjects were only tested on drug name, drug dosage and drug frequency. Thus, purpose, side-effects and precautions of medication remained untested. Hence, the validity and suitability of this tool in the present research must be questioned. Further tool development is required in order to test the relationship between patient knowledge and intention to self-medicate during hospitalization. As a preliminary research piece it must be expected that further research will be required in order to refine the tools of measurement and adapt the research to a nursing perspective.

In the present study correlational analysis was performed to determine the relationships between the variables in the model. Pearson's Product Moment Correlation Coefficient (r) determines general two-way correlations between the variables. A further recommendation for study would be to analyze the relationships between the variables using path-coefficient analysis. By determining the path-coefficients, a better understanding of the direct and indirect relationships between
the variables in the model could exist, and hence causal relationships could be determined. Several factors limit the power of these study findings, namely the small sample size and sampling technique, the limited time frame, the use of only one study setting, the exclusion of non-English speaking participants and the fact that patient socioeconomic status remained untested. Despite these limitations the findings from this study have widespread implications in the field of nursing practice. A high correlation between a patient's attitude and their intention to perform the behaviour of self-medication is a significant finding for all healthcare workers. Based upon these findings, the importance of nurses and other healthcares encouraging positive attitudes in patients toward the practice of self-medication is highlighted, especially if the healthcarer wishes to encourage a more responsible and self-directed patient population. The fact that nurses are important and influential role-models for patients means that the acceptance of a self-medication program in hospital will ultimately depend on how positively the nurse views and instigates such a program for the patient.

Thus, to summarize, it has been identified from this study that patients' if given the choice will choose self-medication during hospitalization in an acute care setting. Subjects' felt that an increased independence and control over health status were important for the individual during hospitalization. In
addition, they also felt that a self-medication program was one way in which the individual could attempt to maintain this independence and control. Healthcare workers must allow patients the right to exercise their wishes in an ever changing and evolving healthcare environment and hence, allow for increased involvement and direction in self-care. A self-medication program also allows the nurse to focus her time and energy into patient teaching rather than as a methodical distributor of medication. In addition, more patients may connect the pattern of drug taking in hospital with the possible continuation at home and hence, compliance to and knowledge of medications would hopefully improve. Lastly, in a healthcare environment where the emphasis is moving away from the institution and towards decentralized community facilities, a self-medication program seems an obvious step in the right direction.
Dear participant,

this questionnaire forms a part of my research study into the attitudes of patients toward the practice of self-medication during hospitalization. In order to qualify for the study you must have been hospitalized at some stage in the past five years. This study is concerned with your attitudes toward the behaviour of self-medication based on your past experience as a patient in a hospital.

The purpose for conducting research in this area is due to the increased emphasis and attention now placed upon patient involvement in self-care while hospitalized. There is now suggestion that the implementation of self-medication programs in hospital are one avenue by which patients can participate in self-care. Research into this area is limited. Your views toward such a program are valued and thus worthwhile information should be gained from performing this present study.

The questionnaire will take approximately 10-15 minutes to complete. The questions survey your attitudes toward the practice of self-medication. That is, taking your own pills when hospitalized rather than relying on nursing staff to "dish" them out at appropriate pill times. It will include only those pills that you take on a regular basis at home and would continue to take when hospitalized. A section on knowledge is
also included. This section requires you to complete a table regarding the names of the pills you take, the dosage and the frequency of administration.

This research is a requirement for my completion of a Bachelor of Health Science degree (Honours), at the Western Australian College of Advanced Education. Your participation in this study would therefore be greatly appreciated.

Your participation is voluntary and if at any time you wish to withdraw from the study you may do so immediately. All information collected from you will remain strictly confidential. No harm should come to you from participating in the study. Following data analysis all questionnaires will be destroyed.

Thank-you for your time,

Elizabeth Reilly
Patient Attitudes Toward Self-Medication During Hospitalization

In this questionnaire we are concerned with peoples views toward a self-medication program in hospital. That is, you the patient, taking your own medication at the bedside rather than the nurse "dishing" out the medication at "pill times". In this questionnaire we are interested only in those medications which you take by mouth (pills).

1. Circle the appropriate number:-
   (a) Sex  1. Male
            2. Female
   (b) Age  1. 18-35
            2. 35-50
            3. 50-65
            4. over 65
   (c) Number of hospitalizations in past 5 years
            1. 1-2
            2. 3-5
            3. more than five

In the following questions which make use of rating scales with seven places, you are asked to mark an "X" in the place that best describes your opinion. For example, if you were asked to rate "the weather in Perth" on such a scale, the seven places
would be interpreted as follows:

The weather in Perth is

<table>
<thead>
<tr>
<th>good</th>
<th>extremely</th>
<th>quite</th>
<th>slightly</th>
<th>neither</th>
<th>slightly</th>
<th>quite</th>
<th>extremely</th>
</tr>
</thead>
</table>

If you think the weather is quite bad, then you would place your mark as follows

<table>
<thead>
<tr>
<th>good</th>
<th>extremely</th>
<th>quite</th>
<th>slightly</th>
<th>neither</th>
<th>slightly</th>
<th>quite</th>
<th>extremely</th>
</tr>
</thead>
</table>

In making your ratings please remember the following points:

(1) Place your marks in the middle of spaces, not on the boundaries.

<table>
<thead>
<tr>
<th>good</th>
<th>X</th>
<th>X</th>
<th>bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>this</td>
<td>not this</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(2) Be sure to answer all items.

(3) Never put more than one mark on a single scale.

You now have enough information to fill in the following questions.

2. Being responsible for my own medication in hospital would be

<table>
<thead>
<tr>
<th>good</th>
<th>wise</th>
<th>beneficial</th>
<th>harmful</th>
</tr>
</thead>
</table>

3. If I was able to self-medicate in hospital it would make me feel independent

<table>
<thead>
<tr>
<th>very likely</th>
<th>unlikely</th>
</tr>
</thead>
</table>
1. If I was able to self-medicate in hospital it would give me more control of my health situation


5. If it was left up to me to take my own medication in hospital it would make me worry


6. A self-medication program in hospital would improve my knowledge of the medication I am prescribed


8. Having more control over my health situation is good: : : : : : : bad


10. Increasing my knowledge about the drugs I presently take is good: : : : : : : bad

11. Most people who are important to me think that I should be responsible for my own medication


12. Most members of my family think I should be responsible for my own medication

13. My close friends think that I should be responsible for my own medication


14. The hospital staff (doctors, nurses and paramedicals) think I should be responsible for my own medication


15. My own doctor (ie. my local GP) thinks I should be responsible for my own medication


16. Generally speaking, I want to do what most members of my family think I should do


17. Generally speaking, I want to do what my close friends think I should do


18. Generally speaking, I want to do what the hospital staff (doctors, nurses and paramedicals) think I should do


19. Generally speaking, I want to do what my own doctor (ie.GP) thinks I should do

20. If I was given a choice to self-medicate in hospital I would choose self-medication

very likely unlikely

21. If I was able to self-medicate during my hospital stay I would always take my pills

very likely unlikely

22. After participating in a self-medication program I feel I would be more inclined to take my medication at home after discharge from hospital

very likely unlikely

23. After participating in a self-medication program I feel I would be more inclined to take all of my pills according to the instructions on each pill box or container

very likely unlikely

24. When at home I have trouble remembering to take my medication

very likely unlikely

25. At home I usually take my pills at the correct time

very likely unlikely

26. At home I usually take the correct number of pills throughout the day (ie. correct frequency of administration)

very likely unlikely
27. At home I usually take the correct number of pills at any one time (ie. correct dosage)

very unlikely unlikely likely very likely

28. Knowledge of Medications

This question is aimed at testing your basic knowledge of the medication or pills that you are currently taking. In this question I am only interested in those medications which you take on a regular basis at home and would continue to take if you were in hospital. The researcher will assist you in writing down the names of each type of medication in the following table. The rest of the table must be completed by yourself without any assistance from the researcher. A maximum of five types of medication are to be included in the table.

<table>
<thead>
<tr>
<th>DRUG NAME</th>
<th>DOSAGE</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
Appendix B

Short Portable Mental Status Questionnaire - E. Pfeiffer, M.D.

Subjects who were the age of 65 or over were required to answer this short questionnaire. The questionnaire was issued by the researcher to each subject. Analysis of the questionnaire and subject suitability for participation was determined privately so as not to offend the subject.

Instructions

Answer questions 1-10 and record all answers in the space provided.

1. What is the date today?_____________________
2. What day of the week is it?__________________
3. What is the name of this place?______________
4. What is your phone number?________________
5. How old are you?___________________________
6. When were you born?_______________________
7. Who is the Prime Minister of Australia?____
8. Who was the Prime Minister before him?____
9. What was your mother's maiden name?_______
10. Subtract 3 from 20 and keep subtracting 3 from each new number, all the way down.______

__________ Total number of errors
Interviewer to Complete

Race 1. White
  2. Black or Ethnic
  3. Other
Years of education 1. Grade School
  2. High School
  3. Beyond High School

Instructions for Completion of Questionnaire

Ask the subject to answer questions 1 through to 10 and to record all answers. All responses to be scored correct must be given by subject without reference to calender, newspaper, birth certificate, or other aid to memory.

Question 1 is to be scored correctly only when the exact month, exact date, and exact year are given correctly.

Question 2 is self-explanatory.

Question 3 should be scored correctly if any correct description of the location can be given.

Question 4 should be scored correctly when the phone number can be verified or repeated at another time in the interview.

Question 5 is scored correct when stated age corresponds to date of birth.

Question 6 is to be scored correctly when the month, date, and year can be verified or if the answer correlates with question five.

Question 7 requires only the last name of the Prime Minister.

Question 8 requires only the last name of the previous Prime Minister.
Question 9 does not need to be verified. It is scored correct if a female's first name plus a last name other than the subject's last name is given.

Question 10 requires that the entire series must be performed correctly in order to be scored as correct. Any error in the series or unwillingness to attempt the series is scored incorrect.

**Scoring of the Questionnaire**

The data suggests that both education and race influence performance on the Mental Status Questionnaire and they must accordingly be taken into account in evaluating the score attained by the individual. For white subjects with at least some high school education, but not more than high school education, the following criteria have been established:

- 0-2 errors  Intact Mental Functioning
- 3-4 errors  Mild Intellectual Impairment
- 5-7 errors  Moderate Intellectual Impairment
- 8-10 errors  Severe Intellectual Impairment

Allow one more error if subject has had only grade school education. Allow one less if subject has had education beyond high school. Allow one more error for black and ethnic subjects, using identical educational criteria (adapted from Pfeiffer, 1975).

For subjects to be included in this study they must fit into the "intact mental functioning" category.
References


