Factors that influence medication non-compliance among patients on chronic medication at the Kensington Community Health Centre in Kensington, Cape Town

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Abstract

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Failure of patients to comply with medication regimens is a major barrier to the delivery of effective medical care. Measures to improve compliance must be based on knowledge of the reasons why patients are not compliant.

In this minithesis, a non-intervention study was employed to identify a sample of patients on chronic medication at the Kensington Community Health Centre (CHC) who were non-compliant and to established the factors that influenced their non-compliance using exploratory and descriptive methods.

The initial sample was selected by reviewing records of patients on chronic medication attending the facility on 3 consecutive days and patients who displayed a trend of missing appointments were selected. It needed to be established whether these patients were indeed non-compliant.

These patients were therefore interviewed using a structured questionnaire. The categories covered by the questionnaire were educational background, socio-economic background, understanding of the illness, understanding and administration of medication and service-related factors. 97% of the patients were found to be non-compliant and the factors identified as influencing this non-compliance were further explored in the patient and staff interviews.

Semi-structured in-depth interviews were then conducted on the patients found from the questionnaire to be most non-compliant. Staff members were also interviewed. This provided information about the knowledge, attitudes and practices of non-compliers and identified contributory service-related factors.

The results from this study revealed that patients had a severe lack of understanding of their medical conditions as well as medication regimens. Factors that affected medication non-compliance at this CHC included medication side-effects, forgetting and poor communication between the health care provider and the patient.

The minithesis was concluded with recommendations that may be used to improve the success of patient treatment as well as to reduce the state expenditure on medication which non-compliance can induce. The recommendations were based on strategies to improve patients' understanding of their medical conditions and medication regimens.

The results of this study suggested that non-compliance should be closely monitored by the CHC and a simple method like written reminders could be employed to recall non-compliant patients. The findings of this study can help to guide managers and stakeholders to improve patient compliance at the Kensington CHC. This may be useful to understand and attempt to solve medication non-compliance in other communities.

May 2003

Declaration

I declare that *Factors that influence medication non-compliance among patients on chronic medication at the Kensington Community Health Cente in Kensington, Cape Town* is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Deidré Mabel Prince

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Contents

Introduction

Patient non-compliance to medical regimes could result in unsuccessful medical intervention. This can be costly to the state and the nation's health. This empirical research at the Kensington Community Health Care Centre (CHC) in Cape Town attempts to identify the factors that contribute to non-compliance and the extent of non-compliance among patients on chronic medication.

Patient compliance includes three aspects of patient behaviour: appointment keeping, medication compliance, and adherence to a general medical protocol for good health (Langer N, 1999:19-25). This study concentrates on medication non-compliance.

The Kensington CHC is a busy health care facility that serves patients living in Kensington and Factreton, adjoining suburbs in Cape Town. According to South Africa Census 1996, Kensington had a population of 12996 and Factreton a population of 12280. The patients are largely from a low socio-economic background with high unemployment. The CHC is the only public curative health service servicing both these areas.

The staff at the CHC comprises of 2 doctors, 1 pharmacist, 3 pharmacy assistants, 1 facility manager, 4 nursing sisters, 2 staff nurses, 1 nurse and 3 receptionists. An

average of 3200 patients attend the CHC every month with a monthly total of 3405 prescriptions and an average of 3.5 items per prescription (taken from the CHC's 2003 statistics).

According to the statistics provided by the CHC, less than 5% of the patients are younger than 5 years of age, almost 60% are between 5 and 60 years of age and less than 40% are older than 60 years.

In my initial exploratory discussions with the staff, management and users of the CHC, the following factors were suggested as being possible reasons for non-compliance:

- long waiting periods because of staff shortages;
- distance of the CHC from the patient's home;
- cost of transport;
- patients forget to take medication (particularly geriatric patients); and
- patients not being able to take time off from work to attend the CHC.

It was agreed that it might be useful to establish the extent and reasons for non-compliance through empirical research. This could inform the improvement of the population's health status in Kensington and beyond, and save the government millions of Rands, which it can least afford to waste.

Chapter 1 looks at the current research in the field of patient non-compliance and identifies the main factors that have a bearing on this research.

Chapter 2 discusses the design and methods employed in this study. An exploratory descriptive study was employed using a combination of data collection techniques. These included the use of patient records, a questionnaire and semi-structured interviews.

A patient record review identified "potential" non-compliant patients. A questionnaire identified the "true" non-compliant patients from this sample and established the main causes of non-compliance before embarking on the descriptive study. A descriptive method was chosen for the "most" non-compliant patients (identified from the questionnaires) and staff. This established the knowledge, attitudes and practices of the non-compliers and identified possible problems around service delivery that could contribute to non-compliance.

Chapter 3 focuses on the results and discussion. The main factors contributing to patient non-compliance as identified by this research is analysed in some detail.

Chapter 4 finally concludes with recommendations to improve patient compliance.

Problem Statement

There appears to be a high rate of medication non-compliance among patients on chronic medication at the Kensington CHC. There is a need for information to identify the reasons for non-compliance in order to address these factors.

CHAPTER 1

Literature Review

Medical advice or treatment regimens are only effective if patients are willing and able to follow it. Compliance is of particular concern among patients with chronic diseases who are often on a number of different types of medication and constantly changing medication regimens.

The following literature review would first define compliance and then consider various factors that previous studies have shown to contribute to medication compliance. These factors include patient behaviour, problems related to elderly patients, understanding of medical conditions and medication regimens, the influence of side-effects, health provider factors, culture and consequences of non-compliance. The literature review concludes with methods used in assessing medication compliance.

Defining compliance

There are various definitions of compliance among researchers. Compliance is the extent to which patients' behaviour coincides with medical advice (Haynes R, 1979; Hulka B, 1979). De Wet B, et al (1980) defined compliance as 'taking the

right pill in the right dose at the right time for the right time' in her study on medicine compliance.

Non-compliance can therefore take the form of omitting to take the medication, taking incorrect dosages, the infrequent use of medication or taking the prescribed treatment in the wrong way or at the wrong time.

Non-compliance is a complex international phenomenon and occurs among all socio-economic groups and in different medical environments. Studies have shown that non-compliance can range from 20% to 80%, depending on the kind of treatment (Jaret P, 2001:1-9). About 80% of patients comply with short-term preventive treatments, but compliance may drop to about 40% when patients need to adhere to a longer prophylaxis (Podell R, et al, 1976).

It is clear from current analysis that there is no clear or single definition of non-compliance. Various social, political and cultural factors affect non-compliance. Researchers need a working definition that suite their own conditions.

Patient related factors affecting compliance

Some studies have shown a correlation between non-compliance and socio-economic parameters like poverty and education while other studies have shown no correlation (Podell R, et al, 1976:76). A study by Hulka B et al, in 1979 found there was no significant correlation between non-compliance and age, sex, marital status, education and social class while another study found twice as many males

as females defaulted (Elechi C, 1990). Clearly, the explanation for non-compliance is uncertain. A complex matrix of issues affects patient bahaviour.

A study on factors responsible for non-compliance among tuberculosis patients in India (Adriaanse H, et al, 1992:291-306), found little association between demographic and socio-economic variables and compliance.

The factors affecting non-compliance may vary between different patients or communities. In the compliance literature, studies often portray patients as passive recipients of recommendations but patients often make their own decisions and seldom do what the doctor recommends. In her study, Hunt L, et al (1989) reported that patients changed their prescribed treatments to control their symptoms within the constraints of their daily routines.

Patients on chronic medication are often concerned about their dependence on a drug or they may wish to deny the disease (Podell R, et al, 1976:77). They may experiment with doses to feel in control of themselves (Jaret P, 2001:1-9) and some patients are not convinced that the therapy is effective.

A study of epileptic patients found 42% of patients self-regulated their medication (Conrad P, 1985). Conrad suggested that patients reduced or stopped medication to test the severity of their illness, altered doses to exert control over their illness, did not take medication because they did not want to acknowledge their illness and altered doses according to their life-style.

The presence and severity of symptoms also affects compliance. Some studies suggest that patients with symptoms keep follow-up appointments almost 80% of the time, while compliance with appointments drops to about 50% in patients with no symptoms (Podell R, et al, 1976). Another study found that patients strictly adhered to treatment regimes when symptoms bothered them (Hunt L, et al, 1989).

Patients do not merely follow recommendations but clearly make their own decisions regarding their medication. They exert this control by adjusting their dosages according to their symptoms and lifestyle.

Medication related factors affecting compliance

Ease or difficulty in following instructions as well as lack of knowledge regarding what the medication is for and how long to take it, may affect patient compliance (de Blecourt J, 1979). Patients often misunderstand the need for long-term preventive medication. To achieve a high level of compliance, patients need to understand the purpose and details of the therapeutic regimen. Patients with chronic conditions often discontinue their medication after feeling well because they were not informed to continue their medication for life (Podell R, et al, 1976).

A study of children attending the outpatient department at the Red Cross War Memorial Children's Hospital found that patients took less than one-quarter of the medicines dispensed, correctly due to inadequate knowledge of the medicine and its intended purpose (De Wet B, et al, 1980).

A study (Hulka B, et al, 1976) tried to identify features of the medication regimen, which correlated with medication-taking error. It found that the greater the number of different medications the doctor prescribes, the more the patient omits.

Patients on chronic medication must therefore be made aware of the need for long-term use of their medication. Doctors should keep the medication regimen as simple as possible and ensure that patients understand the rationale behind the regimen.

Elderly patients

Since a large number of the study population was elderly, the effects of age on non-compliance was investigated.

Elderly patients may be particularly vulnerable to the adverse consequences of medication non-compliance (Col N, et al, 1990). They are also more likely to be non-compliant because of multiple chronic illnesses and, therefore, complex medication regimens (Col N, et al, 1990).

A study measured the effect of difficulties in reading and understanding prescription labels, on medication non-compliance among seniors (Moisan J, et al, 2002). The results demonstrated no association between non-compliance and difficulty in reading and understanding prescription labels. It suggests that seniors are more likely to be treatment-compliant on a simple regimen with clear instructions. This notion was also supported by many empirical studies over a period of time. (Hulka B, et al in 1976; Hemminki E, et al, 1975; Neely E, et al, 1968).

A study on elderly people's compliance with prescriptions found that the number of deviations from the instructions directly correlated with the number of prescribed drugs. Elderly patients were non-compliant because they tried to reduce the amount of medication taken but took medication more carefully if they considered it important (Hemminki E, et al, 1975). In elderly patients, the incidence of serious errors in taking medication increased when patients were taking several different kinds of medication (Neely E, et al, 1968).

It is clear from contemporary research that to improve compliance, it is important that the medication regimens of elderly patients are simple with clear and easy-to-follow instructions.

Side-effects

Treatment-related side-effects may also affect medication compliance (Cator M, et al, 1999:1) and unanticipated side effects are especially important because they confuse or frighten the patient (Podell R, et al, 1976:78). Patients do not always inform the doctor about their side-effects and doctors therefore need to look out for it to make the necessary adjustments in the regimen (Podell R, et al, 1976:78).

A study of women using injectable and oral contraceptives in Johannesburg found that nearly all the women using injectables had experienced menstrual disturbances, but over one third had not been informed by the providers about the possibility of these changes (Beksinska M, et al, 1998). Many women gave the disruption of their menstrual cycle as the reason for non-use.

Patients should be warned of possible side-effects of their medication and doctors should encourage patients to report side-effects. This will enable the doctor to make medication adjustments if necessary.

Health provider and communication factors affecting compliance

Non-compliance may be due to inadequate communication between the health care provider and the patient (le Roux C, 1997). To achieve compliance, the assumption is often that the patient must follow the doctor's instructions and the underlying reasons for non-compliance is overlooked. Research that focuses on the doctor-patient interaction and how non-compliance is related to the patient's unmet needs, encourages health personnel to critically examine their roles and understand the patients' interpretation of their disease.

Doctors may improve patients' compliance by communicating with them effectively. A study found that counselling reduced patient non-compliance and error by almost 40% (Kellaway G, et al, 1979). It was particularly effective in reducing non-compliance as a result of medication side-effects or patient belief that therapy was ineffective. Patient-error due to misinterpretation was also reduced.

It is difficult for the doctor to establish an ideal and continuous relationship with a patient that will compensate for the impersonality of large hospitals. An ideal doctor-patient relationship can improve compliance with treatment because the patient can be encouraged to follow instructions and adhere to regimens (Unterhalter B, 1979).

A study conducted at Baragwanath Hospital (Buchanan N, et al, 1977:227-229) found problems such as inappropriate prescribing and lack of communication between physician and pharmacist, influenced compliance.

A study among schizophrenic patients (Nelson A, et al, 1975) looked at the importance of the role of the pharmacist in influencing compliance. The study suggests that because pharmacists are the last professional contact in most medical settings, they have a therapeutic contribution through monitoring and counseling and are able to humanise patient care and improve it.

A study of compliance among patients from minority groups in America (Francis C, 1991) found that nurses were able to establish close relationships with patients and maintain high compliance among asymptomatic hypertensive patients. This was because nurses were generally residents of the community and were able to relate socio-economically to the patients.

Patients often weigh up the expected benefits, such as symptomatic relief, against the severity of their symptoms and the perceived risks of treatment such as side effects, according to their beliefs and the information available to them (Donovan J, et al, 1992). An important means of improving compliance rates is to develop a co-operative relationship between patients and doctors. Doctors need to recognize patients' decision-making abilities, to try to understand patients and to develop treatment regimes in consultation with patients.

Good communication on a continuous basis between the doctor and patient is particularly important to improve medication compliance. This enables the doctor to improve the patient's understanding of the medical condition and medication regimen. Doctors need to understand patients' backgrounds in order to address their needs.

Doctors should remember that they are not the only source of the patient's knowledge. Patients often consult a range of people for advice on their medical conditions and the treatment. Cultural beliefs and stigmatisation of certain conditions or medication may also influence patient compliance.

Cultural and racial factors affecting compliance

Internationally, cultural and racial factors have been found to influence non-compliance. This may be a particular consideration in the South African public health context where health care providers and patients often come from different cultural and racial backgrounds.

The influence of traditional medicine was also investigated. In a pilot study among black psychiatric patients (Bhengu S, 1989), one of the reasons given for poor compliance was that patients resorted to traditional healers because the care is more individualised and they provide psychological support to patients and family without negative labeling and stigmatising.

A study of tuberculosis management in a rural community (Griffiths M, et al, 1981) found many patients were unconvinced by the explanation given of their

disease and visited the traditional doctor who encouraged them in some instances to discontinue their therapy.

A study on compliance with Western medical treatment in a group of black ambulatory hospital patients in Soweto (Unterhalter B, 1979) found a relation between non-compliance and a lack of understanding compounded in the South African context, by the absence of knowledge of diseases in the Black indigenous culture. This study also described crowded clinics, lack of continuity of medical care and failure to provide adequate health education as additional problems. It suggested that the barriers of language and race be taken into account, as well as the authoritarian attitudes of the doctor, which may inhibit patient participation.

A study to improve compliance among Xhosa psychiatric patients (Gillis L, et al, 1989) found that the most common reason for non-compliance was patient resistance mainly due to culture, social attitudes and belief systems. The study also demonstrated that repeated verbal and written instructions did not increase compliance with oral medication, but that a single home visit almost doubled the compliance rate.

A study among Southeast Asians suggested that cultural factors that affect beliefs about depressive disorders also affect compliance (Kinzie J, et al, 1987). The Western-trained psychiatrist usually has a biopsychosocial model of depressive disorder while Asian patients usually perceive disorders as an imbalance of cosmic or bodily forces. The prescribing of medication by the Western psychiatrist and the taking of medication by an Asian patient may involve completely different cultural

belief systems. Most non-compliant patients mentioned the side effects and complained that Western medicine was "too strong".

Health care providers should therefore be aware of potential cultural differences and belief systems when dealing with patients.

Other factors

Factors shown to be associated with non-compliance include patient dissatisfaction, dislike of medication, inappropriate or unmet patient expectations and the influence of family and friends. Family supervision has been associated with greater compliance (Jilek W, et al, 1970).

The problem of patients' forgetting and long waiting times are also factors contributing to non-compliance (Ley P, 1988). The duration and complexity of the regimen (Jaret P, 2001:1-9) and the degree to which it interferes with the patient's usual routine are possible contributors to non-compliance (Podell R, et al, 1976:78).

Patients in Johannesburg were interviewed after they collected their medication from the pharmacy (Buchanan N, et al, 1979:368-373). Only 28% of diabetics knew that they suffered from diabetes and only 26% of hypertensives realised that they suffered from hypertension. The majority of patients saw different doctors at each visit and due to long waits for hospital consultations, they often consulted other sources. Reasons for non-compliance included side-effects, forgetting to take medication and inappropriate prescribing habits.

Consequences of non-compliance

Non-compliance can be life threatening and the more serious the medical condition, the more problematic the possible consequences. For instance, if people with drug-resistant tuberculosis do not take their medication, they endanger themselves and those around them (Jaret P, 2001:1-9). Patients, who stop taking their antihypertensive drug after three months, increase their risk of cardiovascular disease and stroke (Jaret P, 2001:1-9).

The consequences of non-compliance could be even more devastating. In a study of postpartum anti-retroviral drug use among pregnant women infected with HIV, researchers found that only 28% of the women were compliant. This is alarming because non-compliance with antiviral therapy increases the risk of HIV transmission to nursing newborns (Jaret P, 2001:1-9).

Adherence to any anti-retroviral regimen could be difficult due to complex drug regimens and side effects. Poor adherence to anti-retroviral therapy results in decreased viral suppression and may be associated with the development of drug-resistant virus.

Non-compliance may affect the efficacy of treatment in chronic diseases. A study in Switzerland found that almost half the failure to reduce elevated blood pressure to normal levels might be due to patients not taking anti-hypertensive drugs as prescribed. Physicians increased the dosages because they were unaware that patients were non-compliant and these patients developed hypotension when they then took all the drugs prescribed (Stephenson J, 1999:1-4).

A study in Soweto to investigate strategies to improve compliance in hypertensives (Saunders L, et al, 1991) demonstrated that a simple strategy of sending letters to remind patients about their appointments might improve attendance compliance in the urban African setting.

A study in Johannesburg investigated factors affecting chemotherapy compliance among black and white children suffering of leukaemia (MacDougall L, et al, 1989:481-484). The socio-economic and educational status of the black families was lower than that of the white. Only 53% of black children attended hospital on the appointed day compared with 90% of white children. Few black parents understood the nature of their child's illness and white parents more frequently reported toxic effects related to chemotherapy. This study employed a structured questionnaire with both closed and open-ended questions. The black families received all their information from the staff via verbal communication whereas white parents derived added information from books. More black parents had problems in bringing the child to the clinic. Reasons for default included poor transport facilities, distance from clinic, travel expenses, loss of a day's wage and nobody to care for the other children on clinic days.

Non-compliance may increase the total cost for the health care system (Kardas P, 2000:1). Studies have shown that non-compliance causes 125 000 deaths annually in the US, and leads to 10-25% of hospital and nursing home admissions. Non-compliance often leads to extra visits to the doctor and unnecessary hospitalisation. This can be costly to the health care system. In 1979 the costs in the USA of non-compliance with 10 common classes of prescribed medications were estimated to

be between 396 and 792 million dollars (Ley P, 1988). South Africa can least afford this unnecessary expenditure if similar trends are found here.

The consequences of non-compliance could be serious and costly. The factors influencing non-compliance should therefore be addressed.

Assessing medication compliance

Different methods are used to assess medication compliance, each having advantages and disadvantages.

The simplest method is patient self-reporting, which is easy for the patient but is sometimes inaccurate and may provide an over-estimation of compliance (Hemminki E, et al, 1975: 92; Gordis L, et al, 1969; Moulding T, et al, 1970; McElnah J, et al, 1997). These over-estimations may reflect patient forgetfulness or a desire to please the clinician. The validity and reliability of self-report measures can be enhanced by diminishing the pressure on patients to under-report non-compliance by the interviewer adopting a non-threatening manner and assuring the interviewees that their responses are anonymous and confidential (Rand C, et al, 1994).

The clinician's impression of compliance is a fast and low cost method, but it has also been shown to vary widely in chronic disease.

Pill counting is a more objective means of assessment but it is unable to distinguish between correct use of the medication or deliberate emptying of medication prior to a scheduled visit to the doctor (Cochrane G, et al, 1999).

Some studies use outcome as an indicator of compliance levels but it is generally considered an inadequate measure since the condition may be self-limiting or the treatment ineffective (Hunt L, et al, 1989). The method considered most reliable is bio-assay, but this is rarely used because it is too expensive or logistically impractical (Eraker S, et al, 1984).

MacDougall L, et al employed a structured questionnaire with both closed and open-ended questions in his study investigating factors affecting chemotherapy compliance.

In summary, it is clear from the literature that the factors affecting compliance are not definitive but vary from socio-economic status, gender, education, culture, type of medication, type of illness, communication between doctor and patient, etc. It is important to understand factors affecting medication compliance at the Kensington CHC. It can improve the management of chronic conditions and recommend improvements in the prescription of and education about medication.

Many studies conducted in other developing countries have little relevance to South Africa's particular social, economic, cultural and political position. Some of the local research goes some way to contextualising these conditions among non-

compliers. This research contributes to a body of knowledge that can help to understand and eleviate our health problems.

CHAPTER 2

Research Design and Methodology

2.1 Aim

The aim of this study is to determine the extent of medication non-compliance of patients on chronic medication at the Kensington Community Health Centre and to identify the factors influencing this non-compliance.

2.2 Objectives

This study seeks to achieve the following:

1. Identify and select a representative group of patients on chronic medication attending the CHC.
2. Identify the non-compliant patients in this group.
3. Establish the reasons for non-compliance.
4. Establish the knowledge, attitudes and practices of the non-compliers.
5. Identify possible problems around service delivery that could contribute to non-compliance.
6. Share and discuss the results with the staff, management and users of the CHC.

7. Make recommendations to health authorities to improve patient compliance at the CHC.

A record review was employed to achieve objective 1.

Results from the questionnaire established the information required for objectives 2 and 3.

Qualitative methodology was employed to achieve objectives 4 and 5.

2.3 Definitions

Non-compliance: As is evident in the literature review in chapter 1, there is no single definition of non-compliance. For the purpose of this research, non-compliance is broadly defined as not taking the correct amount of medication at the recommended time. Patients will therefore display different rates of non-compliance.

Potential non-compliers: These were patients on chronic medication who were found from the record review to display a trend of not keeping their appointments to collect their medication monthly.

True non-compliers: These are potential non-compliers who were found through the questionnaire not to generally comply with their prescribed dosage regimens.

Most non-compliant patients: These are true non-compliers who were found, through the questionnaire and a review of their records, to display extreme tendencies of deviating from their medical regimens.

2.4 Study Design

This is an exploratory descriptive study using a combination of quantitative and qualitative methods that were successfully used in previous studies to analyse non-compliance (MacDougall L, et al, 1989). The main advantage of this design was feasibility in terms of time and resources (Cochrane G, et al, 1999), as well as to develop an in-depth understanding of factors related to non-compliance.

Exploratory method

A patient record review identified the "potential" non-compliant patients.

The responses in the questionnaire provided the necessary information to identify the "true" non-compliant patients. This less flexible method was used to establish the main causes of non-compliance before embarking on the descriptive study.

Descriptive Method

A descriptive method was chosen for the "most" non-compliant patients. This method is easily understandable and provided useful information regarding non-compliance. A disadvantage is that respondents had to sacrifice more of their time to answer further questions after the questionnaire. Interviewees may have under-reported their non-compliance and may not have reported attitudes accurately because they might have wanted to please the researcher. They may also have feared being critical of the CHC staff and service because of possible victimisation. The researcher therefore assured confidentiality of information and adopted a non-intimidating empathetic manner in the interviews to encourage patients to give honest responses.

A descriptive method was chosen for CHC staff members to give a different insight into the possible causes of medication non-compliance at the CHC.

2.5 Study population and study sample

The study population was patients on chronic medication attending the CHC and the study sample was non-compliant patients on chronic medication.

2.6 Data collection technique and tools

The researcher consulted with the management, staff and users of the CHC to notify them about the purpose of the study and how it would be conducted. The researcher collected the data. Confidentiality was ensured and voluntary participation in the study was emphasised. Permission to proceed with the data collection was obtained from management, staff and users of the CHC.

A pilot study was used to identify possible problems with the proposed research method. A small representative sample of the proposed study population was tested before the main study was conducted to save time and avoid potential problems.

A combination of data collection techniques was used to obtain the necessary information. These included the use of patient records, a cross-sectional questionnaire and semi-structured interviews.

Patient record review

The patient records (folders) were taken out and reviewed on 3 consecutive days of data collection before the patients on chronic medication arrived at the CHC for their day's appointment.

The population consisted of patients collecting their chronic medication on these days. This amounted to about 80 patients.

From this group, the patients who displayed a trend of not presenting at the CHC on the prescribed day to collect their monthly supply of medication were selected as the sample for the questionnaire. These were patients who could potentially be non-compliant. This sample included patients who came to collect their medication earlier or later than their appointment dates, or missed a visit because this may signify that they have not been taking their correct medication doses at the correct time. There were 33 patients who met this criteria. The prescribed dosage regimens were recorded from their folders.

This method was chosen because it is a convenient way to select the initial sample. Thereafter it needed to be established whether these patients were indeed non-compliant.

Patient Questionnaire

A quantitative data collection method (questionnaire) with some qualitative questions established the "true" non-compliers and identified a sample of the "most" non-compliant patients for the in-depth patient interviews. (See appendix for the questionnaire.) All potential non-compliers filled in the questionnaire on

their own / with the assistance of the researcher. The questionnaire was used to identify the "true non-compliers" from the "potential non-compliers". The researcher recorded prescribed dosage regimens from patient folders and compared this with their responses in the questionnaire on how they take their medication to establish whether they were indeed non-compliant.

This method attempted to establish whether there were variations in compliance related to the age, gender, educational background, area of residence, accessibility, understanding of their condition and medication as well as complexity of medication regimen.

The semi-structured questionnaires were completed at a private office at the reception area where patients wait for their folders.

This method provided the desired information relatively easily and cheaply. The questionnaire was carried out face-to-face because certain questions had to be explained and the interviewer could assist the respondents to complete the questionnaire accurately. Mainly close-ended questions were used because they were easier to analyse. Open-ended questions were included to allow respondents to communicate their opinions and this formed a basis for the in-depth interviews among those patients who displayed most severe non-compliance. A disadvantage of this method was that patients may not like answering questions or they might have exaggerated their compliance.

In-depth patient interviews

The most non-compliant patients were interviewed individually in a private room at the health facility. These were patients who displayed the following traits: they stopped taking medication, doubled up their medication when they felt they needed to, did not keep to regular times to take their medication etc. 6 patients met this criteria.

The semi-structured in-depth patient interviews were conducted after the questionnaires were analysed and the "most" non-compliant patients were identified. These 6 patients were followed up either telephonically or physically and appointments were made. The face-to-face interviews used a few probing questions and was tape-recorded to allow for a full record of the interview without being distracted by note keeping. (See appendix for patient interview questions.)

It attempted to obtain information on patients' knowledge of their medical conditions, patients' perceptions of the seriousness of their conditions, social support systems, the use and perceived effectiveness of the medication prescribed, the quality of information provided to them by the CHC's staff, reasons for non-compliance and identify possible access-related problems.

This method allowed the interviewer to clarify queries about the research without influencing the interviewee's response. The researcher informed interviewees about the relevance of the study and ensured confidentiality of the information.

Staff interviews

The researcher conducted semi-structured face-to-face interviews to collect information from the health care facility staff to obtain their perspectives on the reasons for non-compliance, ways of improving compliance and the information that they provide patients. It provided more clarity around service delivery and how this could possibly affect the problem. (See appendix for staff interview questions.)

The researcher could then build a complete picture by using the information collected from different sources.

2.7 Sampling

Patient record reviews

The CHC has a system where patients on chronic medication collect a month's supply of medication on specific dates every month. A patient record review provided a sample of patients on chronic medication attending the CHC on the days of data collection. The records provide, among others, the following information: medical conditions, prescribed medication with dosages and missed appointments. This sample size consisted of about 80 patient records.

The researcher selected all patients who displayed a trend of not presenting at the CHC on the prescribed day to collect their chronic medication as the sample for the questionnaire. Patient confidentiality may have been breached.

Patient Questionnaire

The sample size for the questionnaire was 33 and was determined by the number of patients on chronic medication attending the CHC on the days on which the data was collected. These were defined as the "potential" non-compliers. Other non-compliers may have been excluded from this initial sample because they may have collected their medication at the correct time despite not taking it correctly.
The questionnaire identified the "true" non-compliers and hereafter assisted the researcher to identify the "most" non-compliant patients who then served as the sample for in-depth interviews.

In-depth patient interviews

Purposeful (non-random) sampling was conducted whereby the researcher selected a sample of the most extreme cases of non-compliers identified by the questionnaire. This sample size was 6 patients.

In-depth staff interviews

The researcher also interviewed three CHC staff members. The pharmacy assistant, doctor and receptionist were selected by convenience sampling, selecting those who were on duty and available at the time of interviewing.

Validity

The research methods directly addressed the aim and objectives of this study. The factors affecting non-compliance among patients on chronic medication at the Kensington CHC were clearer after this study. The pilot study also improved the validity of this study. The research methods employed were reliable methods that

have been used in previous studies of patient non-compliance. The literature review and interviews conducted by the researcher prior to the research provided a well-informed background and basis for the study. The relatively flexible, multi-method research design allowed the researcher to continually reflect on the research process and make decisions to ensure valid conclusions.

Reliability

This was a small study that was comprehensively dealt with using different instruments (questionnaire and interviews). This multi-method overview provided an accurate account of the extent and factors affecting patient non-compliance. Any similar study ought to produce the same research findings.

Ethical considerations

Voluntary and informed consent was obtained from all people participating in the research work. (See appendix for consent form.) The research methods were designed to ensure that no harm was done to the research participants or any other persons and confidentiality was ensured. The data collected will be of a benefit to the research participants, other researchers, national and provincial health departments and society at large.

Access to the patient records may have been a breach of confidentiality.

Potential bias

It may be that although patients may not have presented on time to collect their medication, they may have been taking it correctly but have obtained it from

elsewhere. These patients were therefore not included in the sample of non-compliant patients interviewed in the descriptive study. On the other hand, certain non-compliant patients may have been excluded from the initial selection process because although they have been collecting their medication regularly, they may not have been taking it.

2.8 Data processing and analysis

Questionnaires

The researcher checked each questionnaire to establish whether it was complete and consistent. The researcher provided it with serial numbers, recorded responses and calculations were made. The non-compliant patients were identified as well as factors influencing this non-compliance.

This enabled the researcher to draw conclusions about the population.

In-depth interviews

The researcher transcribed tape recordings of the interviews and translated Afrikaans quotations into English for the purpose of the reader.

This qualitative analysis identified themes in the data and relationships between these themes. The data was coded and themes were explored closely. The final step was interpreting the data objectively.

CHAPTER 3

Results: Presentation and Discussion

3.1 Results

From the patients on chronic medication attending the CHC on the 3 consecutive days of data collection, 33 were identified as potential non-compliers from the record review. All these patients filled out a questionnaire.

The responses in the questionnaire were analysed to identify the true non-compliant patients who were generally not taking their medication correctly. 32 of the 33 patients were classified as being non-compliant according to the definition described in chapter 2. The results from the questionnaire provided the information to select a sample of the most non-compliant patients who were then interviewed. A sample of 6 patients were selected for the patient interviews (see table i below).

Table i: Age, sex, education and employment status of the most non-compliant patients

Case number	Sex	Age	Education	Employment
10	M	21	Secondary	N
15	F	54	Secondary	N
17	F	59	Primary	N
23	F	61	Primary	N
24	F	53	Secondary	N
30	M	74	Secondary	N

Interviews were conducted with 3 staff members choosing staff performing different tasks at the CHC and who were available at the time of the interview. These results emerged from the questionnaire, in-depth patient interviews and staff interviews conducted by the researcher. The results from the questionnaire established whether patients (selected from the record review) were indeed non-compliant, provided a demographic description of the sample, identified some of the main factors affecting medication compliance and provided the sample for the patient interviews.

Demographic profile of the questionnaire sample

The questionnaire sample consisted of 33 patients. 60.6% were female and 39.4% were male. 57.6% of the patients had some secondary schooling and 42.4% had some primary schooling (see table 1 in appendix). Only 27.3% of the patients were employed and this could either be attributed to the high unemployment rate in this community or the large number of the population being older than 60 years.

30,3% of the patients were older than 60 years and 75.7% were older than 40 years (see table 2 in appendix). The aging nature of the population is in line with the demographic profile of the population of Kensington and Factreton. Age may be a significant factor contributing to non-compliance.

Demographically the sample selected for the patient interviews was representative of the questionnaire sample.

Patients' understanding of their condition

From the questionnaire, 69.7% of the patients knew their medical conditions, 15.15% had some idea of their conditions and 15.15% did not know their medical conditions.

All the patients interviewed had different degrees of understanding of their medical conditions as reflected by the following responses.

> "I receive calming tablets every month".
>
> "My nerves, and I attend the doctor for high blood, my heart and water tablets".

They were often unaware of some of their ailments (most patients were treated for a number of ailments) or they prioritized their ailments according to the symptoms.

> "The arthritis is number one and the sugar. That's all". This patient was unaware that he has also being treated for hypertension.
>
> "Angina and high blood, but not that bad". She has also being treated for menopause, but discontinued taking her medication due to side effects without consulting her doctor.)

Others completely downplayed their chronic ailments and focused on other symptoms.

> "It has been years back when I had water on my brain. They drew the water out…. but recently my eye hasn't been feeling right. It is because I am again beginning to have pain. I have something behind my neck. I have a problem but I cannot actually explain what it is. I have a shoulder that has a screw in it – the bone broke. I suffer from high blood. I never suffered from high blood previously". This patient was also treated for menopause, but she discontinued the prescribed medication as well as some of her anti-hypertensive medication because she "did not think it was necessary".

Patients' interpretation of seriousness of their chronic conditions

When asked whether they thought their medical conditions were serious, most of the patients responded on their general well being and related various other personal complaints. The interviewees reflect a general lack of knowledge of their ailments with some serious conditions being under-rated.

> "Yes, if I work a lot, so I can't do too much at the moment. I must get someone to lift him (husband)".

> "I have to now consider myself because I have to do a lot but I am slowing down tremendously. I can't for instance walk too fast. I can't sleep properly also because I must be alert for…(brother) and another thing is I'm not eating right. There are changes in my body because I'm getting tired. This one left arm is lame and I've got this back also because I'm lifting him (brother) and I've been lifting my mother".

> "This condition on my head – I do not know how far it has progressed, but I am experiencing this pain behind my neck more frequently now. I can't really say it is serious but they did say something was wrong. I am not really bothered by the blood pressure because the high blood is now normal because I use the tablets every month". This patient revealed in the questionnaire that she had stopped taking her anti-hypertensive medication.

> "Sometimes when I get very angry then it can be very serious".

> "I don't think so. Every time I come here they check my sugar levels". This 74-year-old patient, despite being a diabetic and hypertensive (which he was unaware of), did not consider his condition serious.

Information provided by staff to patients about their medical conditions

Patients often only referred to the information supplied to them by the referral hospital. Patient responses indicated poor patient understanding and bad communication between the hospital staff and patient, including the doctor, pharmacist and the nurses. The following respondents reflect this.

> "They (staff at the hospital) spoke to us as if they were testing it (medication)".

Problems in communication seemed more evident in some of the responses. The doctor's explanation of patients' ailments may not be at a level that they can understand.

> "Dr…. mainly writes in the folder. I do not understand much about my condition".
>
> "About the condition, I received no information".
>
> "No, I had to tell the doctor what's wrong with me. No one ever told me about blood pressure. This is the first time now I hear about blood pressure".
>
> "Doctors don't sometimes communicate because when you speak, the doctor tells you okay this is wrong with you but when you explain, the doctor sometimes doesn't examine you properly. *Jy moet maar tevrede wees, dit is verniet* (You must just be happy because the service is free)".

According to the staff members interviewed, they were often required to provide information that did not pertain directly to their roles at the CHC. It appeared that patients felt more comfortable to communicate with other staff because they felt intimidated by the doctor or pharmacist.

> The receptionist: "Many people ask me things that do not concern me. I explain to them as far as my knowledge goes. I will maybe explain to them about a tablet, I will explain the opening hours of the hospital, or for some people I actually even have to read a letter. Some people are very illiterate".

Patients reserved certain questions for staff members with whom they felt more comfortable. Privacy also affected communication.

> The pharmacy-assistant: "It will be on a one to one type of thing, but again there's a time factor. The only thing they normally ask is 'what is the tablet for, what illness and why did the doctor give that type of tablet and not like the other patient'. So they tend to compare because although they have the same ailment, why did the doctor give the one patient this and the other that".
>
> The doctor: "Patients talk to the pharmacist about their side-effects, not to me. They usually make their own adjustments and then they inform you".

Source of most information about medical conditions

Patients often cited the referral hospital as having provided them with the most information about their conditions. They were often unaware of changes in their conditions for which new medication was prescribed and this may affect compliance behavour. There seemed to be a trend of the patients not feeling comfortable to discuss their medical conditions with the doctor.

> "The doctor who treated me at the big hospital (referral hospital) for a stab wound)".

> "I went to a private doctor and then to Conradie hospital. Conradie diagnosed it, from there, I came here, and they treated me for angina. They didn't tell me here". This patient received medication at the CHC for angina, hypertension and menopause. She stopped taking the tablets prescribed for the menopause and has focused on the condition that she was initially referred to the CHC for treatment.

This patient appeared to communicate more with the psychiatrist and nurse than with the CHC doctor who she sees for her chronic conditions.

> "The most of the tablets Dr....(the psychiatrist) and the (nursing) sister told me about".

Knowledge about prescribed medication

From the questionnaire, only 18.2% of the patients knew the names of their medication, 54.5% knew their medicine dosages and 66.7% knew why they were taking their medication.

When questioned about the names of medication and what they were taking it for, patients were often confused and gave vague explanations. Many could remember the colour of tablets only and some were unaware of how often medication should be taken. Patients having to take many tablets for different conditions compounded these problems:

"I get calming tablets every month. I do not know how many tablets I must take".

"I receive a tablet that I must take on my empty stomach because if I take it later during the day then I get a pain in my head. I get eight different tablets. I am for many years already on a disability grant for my nerves and the doctor knows what tablet is what".

"That little pink box is the heart tablet and the one, I put under my tongue, and high blood tablets and the other one I told you that I can't take because it made me a little bit drowsy for 2 days".

Another patient could only show the packets. In the questionnaire, she said she had stopped taking one of the high blood pressure tablets because it was not necessary.

"I don't know the name of my tablets but there are four kinds of tablets".

"I first received a green tablet and a white tablet. Then they stopped the one tablet and gave me another tablet – another white tablet and the other two tablets they stopped. Now I am just using the tablet in the box, not the container's tablets. I brought the tablets along. I can't remember the name".

Perceived effectiveness of medication

According to the literature, patients' perceptions of whether their medication "work" may influence compliance. From the patient interviews, only one patient was very positive about the effectiveness of the medication.

"The medication helps a lot".

Some were not sure because of other influences on their health.

"I don't really know because at this stage as I say, I continuously get tired. I can only really say when I don't have to look after…(brother). I will see how it works for me. It could be that my health has improved but I can't say that the tablet doesn't help".

This patient experienced an improvement in his condition but was ambivalent about attributing this to the medication.

"I don't know if it's due to the medication, but sometimes I do feel much better. Like today, I am not struggling with the arthritis".

Information provided by staff about medication

Most patients had no recollection of having being provided with important information about their medication. Communication again seemed to be a problem.

> "Not that I can remember. Only if I collect the tablets at the chemist, then they write it up".
>
> "The pharmacist, for instance, tells me I mustn't come when my tablets are completely up. There must be 2 or so tablets left….".
>
> "No, they didn't tell me anything".
>
> "No, they did not tell me what each tablet is for. The pharmacist told me nothing about the tablets".

Role and influence of family members

From the questionnaire, 27.3% of the patients had assistance with taking their medication while 72.7% had no assistance.

From the patient interviews, the opinions and support of family members played an important role. Patients displayed a trust in family members' opinions even though they were not necessarily correct.

> "Yes, my mother helps me with taking my tablets. I told my mother about this (side-effects) but she said it is alright".
>
> "My son who brought me today, talks about my conditions. He sees that I take my medication regularly".
>
> "The day when I am too tired, my daughter asks me if I took my medication already".

About side-effects experienced

In the questionnaire, 42.4% of the patients experienced side-effects from their medication and 85.7% of these patients were bothered by the side-effects. The side-effects mentioned most often were drowsiness and GIT disturbances. Others mentioned weight gain and the fear of long-term use of medication.

In the interviews, patients questioned their dosages and possible medication interactions because of the side-effects that they were experiencing. Side-effects were often not discussed with the doctor or pharmacist. Again, opinions of family members played a significant role in determining a response to side-effects. These decisions were not based on medical understanding.

> "The tablet puts me into a deep sleep. It makes me drowsy and sleepy all the time. Yes, it bothers me because maybe the tablets are too strong".

> "I am just very thirsty. I told the doctor but he said that I should not drink too much water because I am also taking a water tablet (diuretic)". Her son said that his mother's tablets sometimes clashed and she adjusted the tablet dosages herself. He was concerned about the number of different tablets his mother was taking as well as the side-effects. He said his mom was bothered by the side-effects of the diuretic because she "wets herself". She didn't mention this during the interview probably due to embarrassment.

Some patients stopped taking the medication that caused the side-effects without first consulting the doctor or informing a staff member of this decision.

> "The last time I was here, I saw the doctor and he gave me a tablet but I only took it one night because the next day, and actually two days thereafter, I still felt like a zombie. It did not work. I didn't take it again". That tablet makes you irritable. Everything works on you".

> "I must take 1/2 a disprin…this affects my stomach".

> "I got hormone tablets but then I got side effects on it. I got very sick so I decided I am not going to take it because it bloated me up. I took myself off the tablets".

> "No I do not take it, because of my head. It did not make me feel well" when asked about the hormone tablets which she had stopped taking.

Information provided by staff about side effects

According to all the patients that I interviewed, surprisingly none of them had been warned about any possible side-effects.

Side-effects appear to play a significant role in patient non-compliance and patients need to be encouraged to discuss this with the doctor. This would improve patients' understanding of their medication and allow them to raise concerns that may ultimately affect their compliance with medication regimens. The following response reflects typical confusion that may result from poor communication.

> "No, they did not tell me anything but I would not have known what it meant. I wonder if that is maybe why he stopped the green tablet, but the doctor never said". This patient mentioned that she had a constant cough and it appeared that the doctor stopped prescribing the tablet because of this side-effect.

When staff members were asked whether they encouraged patients to report side-effects and what advice they gave:

> "We do. Then we'll tell them to stop the medication and come and see the doctor. Normally, I will phone the receptionist to see what is the soonest appointment they can get and then it will be dealt with in the next visit".

When asked if there could be a problem with the time lapse between the patient discontinuing the medication and the next appointment:

> "Yes, definitely because we are booked 3-4 months in advance and it's only if it is really necessary that they will be squeezed in. Also because they don't have an appointment, they will have to come in without an appointment and wait to be seen and that's another day that they have to spend at the day hospital".

Reasons for non-compliance

From the questionnaire, 96.97% of patients were found to be non-compliant. 81.25% of the non-compliant patients skipped dosages and 65.6% did not take their medication at the correct times. Some patients stopped taking certain of the medication altogether.

In the questionnaire the reasons cited most frequently for non-compliance were: forgetting, due to side effects, being too busy and due to not experiencing any symptoms. The patients who cited being too busy often stated that this was due to caring for someone else or having too many domestic responsibilities. (See table 3 for the full list of reasons given by patients in questionnaire for non-compliance.)

Patients often stated that they rather skip taking the medication than take it at the wrong times. Patients also believed that they had to eat before taking their medication and therefore did not take their medication if they did not eat.

The following patient claimed that she did not take her medication correctly because she does not eat properly.

> "…. Therefore, I don't take my medication. You know I am already in the habit, like my mother used to say, you must first eat before you take your tablets".

This belief was even reflected by a CHC staff member when asked about reasons for non-compliance.

> "Some do not eat properly - they do not eat proper mealtimes because some tablets must be taken before meals and others after meals".

In the patient interviews, patients gave the following reasons: having to take too many tablets, religious fasts, side-effects and forgetting.

> "Sometimes I do not take the tablets because there are too many".

> "Oh yes, sometimes I forget. I put it there and towards the evening I remember, I forgot to take this afternoon's medicine. I forget due to other commitments".

> "No, I do not take it, because my head – it did not make me feel well. The other tablets do not affect my head".

Patients adjusted their dosages for various reasons with serious possible consequences.

"Well sometimes I forget. Then I double it the moment I take it. I don't know whether that works. Like the one tablet I have to take in the morning. If I forget about it, the evening I take two. I don't know if it helps".

"I forget. I do not know, but if I have a little cold, then my brain does not also work. If I forget, then I leave out that dose. Sometimes I do not have it with me because I forgot to put it into my bag, then I rather take the next dosage".

Staff opinions on reasons for patients' non-compliance

The receptionist suggested reading difficulties, patients' lack of understanding, lack of support and patient negligence as reasons for non-compliance.

"Some of them can not probably read properly and they do not maybe understand the way you explain to them. Some people need help, like an elderly person needs help to put out the tablets. And some of them are just negligent, that's all".

Another staff member suggested long waiting times, complicated drug regimens (particularly for the elderly), patients' forgetting, medication side-effects, bad staff attitudes and poor doctor/patient relationship as reasons for medication non-compliance.

"Firstly, I think it is the fact that they have to come and sit at the day hospital, so it is the waiting time. Then also, some of them have so many tablets to take and we have lots of old patients and they forget. Also, there are side-effects that might affect compliance and because there are so many tablets, they may not know which one causes the side-effects and then they stop with whatever medication that they are on. Also staff attitudes. The other thing is, if they don't like the doctor or the way he speaks and advises them, eg 'you shouldn't gain weight'…So if the doctor doesn't talk in their favour, they will not take the medication".

Another senior staff member was less critical of the problem.

"It boils down to the education level of patients".

Hospital staff acknowledged the number of tablets, the age and side effects as possible causes for patients' non-compliance. Surprisingly, problems in patient relations like counseling, explanation of medical conditions or general communication problems do not feature.

Ways to assist patients with taking their medication correctly

All the staff interviewed, stated that improving patient education was an important intervention for medication compliance. One staff member also suggested that the CHC should provide homecare and enlist family members in the education process.

> "Education – to educate the patient and for the elderly, get homecare".

> "Get somebody to accompany the patient and to listen to how the patient must take the medication".

Another staff member suggested that patients should be made aware of the consequences of non-compliance.

> "Education and also with education, I don't think they understand what really can happen unless it happens to them or someone else close to them, for instance with a diabetic. They don't always realize the dangers of not taking their medication. It just goes down to education".

Cultural and behavioural influences

When asked whether any cultural or behavioural factors may affect medication compliance, one staff member responded:

> "Definitely! Look, we are all different and what we believe is different. Lets take the muslims for instance. The whole month of the fast they are not taking their medication the way they should. Then after the fast they are back to square one due to not taking their medication and also many of the patients are muslim here".

One of the muslim patients interviewed confirmed this.

> "During the (religious) fast it was just the Epilim tablet that I did not take regularly. It was just during the fast month, but otherwise I take my tablets regularly".

Staff compliment and privacy

All the staff members interviewed responded that the CHC's did not have enough staff, but staff attitudes were also criticized.

"Our staff compliment is not good enough".

"No, we don't have the staff, but I will say it is the attitude of some staff. It is a person's duty to educate and make them (patients) feel happy. Sometimes the attitudes of staff can also spoil things".

"There is not sufficient staff or time to spend educating patients".

The lack of privacy at the pharmacy was also raised as a problem for effective patient counseling.

"Also it is the fact that everybody is sitting there and you don't really want to go into depth although most of the people there would know each other's business. There is no privacy really".

This lack of privacy during counseling could inhibit patients' responses because they are less likely to ask questions or relate important information like side-effects if they are overheard by other patients.

Access

From the questionnaire, 60.6% of the patients walked to the CHC, 30.3% used public transport and 9.1% traveled by car to the CHC. Although a very small percentage of the patients were employed, 77.8% of these patients had to take time off from work to attend the CHC.

The CHC appeared to be accessible to most patients although most employed patients had to take time off from work to attend the CHC and older patients may experience problems walking to the CHC.

In the interviews, patients' experiences varied.

"If I walk, I experience dangerous hot flushes and I get short of breath but today my son brought me".

"No, it is not inconvenient. I can come any time".

Waiting times

From the questionnaire, 48.5% spent less than 1 hour and more than 50% of the patients spent between 1 and 3 hours at the CHC to collect their medication. This seemed to be a reasonable time to wait for medication in a public facility but this waiting time is longer when patients have to see the doctor as well.

However, in the interviews, staff and patients cited long waiting times, particularly at the pharmacy, as a problem. These patients may have referred to the occasions when they have to see the doctor as well because this may significantly increase the total time spent at the CHC.

> The pharmacy-assistant: "The pharmacist would explain, but the time, we don't have enough time really. There're so many folders and patients waiting and by the time they get to the pharmacy, they've been there for the whole day. So obviously they just want to grab their things and go".
>
> "Yes, sometimes I wait long at the hospital".
>
> "Sometimes I wait too long, like the other day I was here, and I became so dizzy at home".
>
> "I find I have no complaints about the day hospital. Only, sometimes you've got to wait very long".
>
> "If I come early, I do find it long, but if I come here later then it (the medication) is just given out".
>
> "If the appointment is about 1 o'clock, then I see that I am here at 10 o'clock because here are sometimes so many people".

Patients' impression of staff and service

From the questionnaire, 97% of the patients were happy with the CHC service. Poor service could contribute to non-compliance but this was not a factor because patients were generally happy and appreciative of the care they received at the CHC.

"They are very helpful. They treat a person well".

"I have nothing against this hospital. With my mother they helped me a lot. With my brother also, I have no problem. They even got me a wheelchair…and the Sister gave me linen savers. They are very helpful".

Patients were also quite sympathetic towards the staff and criticized other patients' behaviour towards them.

"It's only some of these patients. They are rude. They come in and they want to be helped immediately".

"No, I have no problems at this day hospital. I wait my turn, not like some people who scold. I am happy".

One patient held a different view.

"Not all of them are pleasant. Some are very harsh".

Socio-economic factors

Factors like looking after family members, and maintaining a healthy diet affected non-compliance.

In the interviews, patients and staff referred to the difficulty of following some medical advice due to economic constraints.

"The dietician explained to me that I must eat healthily and she gave me a chart and then I told her the diet that she gave me is quite expensive and not having any income, I won't be able to follow it, but I'll do my best".

Some patients were taking care of a family member and often prioritized that person's well-being.

"Due to me looking after…(brother), I haven't eaten right…. I won't be able to take that sleeping tablet because he must get his medication and how am I going to react".

A staff member also referred to patients' social circumstances:

"You will get a hundred and one excuses (from patients) why (they haven't kept their appointments and collected their medication) and most of the time, it is social problems – because they had to go to coloured affairs or whatever".

Ways in which staff detect that patients are non-compliant

Non-compliance appeared to be detected mainly in extreme cases only and the staff interviewed, considered medication compliance as the patient's responsibility.

"Usually when the person comes in and he is in a coma then they will detect that the person has not been taking his tablets".

"It is just in the folder that you will notice and also the fact that their condition deteriorates. There is nothing really that you can do unless the patient is recalled by the doctor. But otherwise the staff feel that the patient should take responsibility of their own health".

Ways in which patients are followed up

The staff members interviewed indicated that non-compliant patients were not followed-up due to time constraints and staff shortage. Once again the staff members did not particularly consider it to be the CHC's responsibility.

"Well, it is not done here because of the fact that there is no time and there is nobody to do it. There is no staff. It will just be noticed in the folder that the person is late or that the person didn't come for 2 to 3 months…"

"It is not followed up".

Patients' suggestions on how to improve the service at the CHC

Staff shortage and remembering appointment dates appeared to be a problem for some patients.

"I wonder if I should say that they should get more staff. …The old people will not have to sit here the whole day".

"Sometimes it is just the dates that I cannot remember".

Others had clearly defined problems with firm suggestions.

"They should get another doctor, definitely!"

"When the Old Age home comes, is it possible that they can have a special day? They keep up some of the patients. If they have a special day or a doctor to see them at the home, it will actually take up less time of the nurses".

"Here are many people. During teatime, can't someone relieve at the chemist so that people can get out of here... Also, during lunchtime, because one has to wait until they (pharmacy staff) come back from tea or lunch. Sometimes the chemist is full, then there are so many people and they can only help a few at a time".

"I know they won't have a 24 hour service like other hospitals, but this may be much better".

Staff suggestions on how to improve patient compliance

When asked about ways in which patient compliance could be improved, all the staff mentioned education, but they all indicated that the CHC did not have the capacity to do this.

"Our staff compliment is not good enough. We have people who come here from outside".

"No, we don't have the staff".

"There is not enough staff nor time to spend educating patients".

These responses by staff members are a clear indication of a lack of responsibility taken for the education of patients.

Other suggestions included:

"To see that they get helped as soon as possible because if they are happy and they are seen as soon as possible, which is not always easy due to staff shortages and things like that, then I'm sure things can be improved. Also starting groups. Making them feel happy and making them feel important. Like if you have a diabetics group for instance. Then everyone will be together and discuss problems and even financially, how to cope with the diet and things like that".

These results indicate a number of factors that may influence non-compliance. It provides a description of the knowledge and practices of non-compliant patients.

4.2 Discussion

In exploring the reasons for non-compliance and the knowledge, attitudes and practices of non-compliant patients at the Kensington CHC, this study has exposed several problem areas in need of address. The following discussion will collectively consider the results of the research. It then looks at the findings and refer to other research in order to make recommendations to improve medication compliance.

The failure to follow a prescribed treatment is often referred to as "patient non-compliance" which implies that the patient is at fault. Most of the compliance literature is from the physician's perspective and fails to consider the patients' views. Successful interventions will have to involve the patient, the medical staff and the institutional infrastructure to address patient non-compliance. Medical staff have to look more critically at the systems and methods of patient interaction and counselling that can contribute to non-compliance. Too often these medical facilities become a comfort zone for staff who see no need for change but apportion blame to patients.

Demographic factors

In the literature, while some studies have shown a correlation between non-compliance and socio-economic factors (Podell R, et al, 1976), other studies found no significant correlation between non-compliance and socio-economic factors, age, sex and education (Hulka, et al, 1976).

In this study sample, the patients came from similar social and educational backgrounds and these factors could therefore not be used for comparison in the non-compliant behaviour. Comparisons in non-compliance could also not be made in terms of age and sex because almost the entire sample (97%) was found to be non-compliant.

The large percentage of elderly patients (see table 2 in appendix) should be of particular concern because from previous studies, elderly patients have been found to be more non-compliant because they generally take more drugs, have multiple chronic illnesses and often have complex medication regimens (Col N, et al, 1990). This was certainly the case in this analysis where chronic medication involved many different tablets among a fairly old population who are prone to forget their regimens and are affected by side effects and how family and friends believe they should treat their medical condition.

Knowledge about medical condition

From the questionnaire, only 69.7% of the patients knew their medical conditions. The patient interviews revealed different levels of understanding of their medical conditions. Patients often had a vague understanding and were at times unaware of all their ailments. There is an alarming lack of knowledge of basic health problems. This can be attributed to a lack of information provided by the medical staff but also implies that there is no significant health care education on a national level at schools, hospitals and clinics. Health care programmes should not only concentrate on people who suffer from ailments but should be geared for the general population.

Patients tended to prioritize their conditions according to the symptoms, while downplaying chronic ailments. This was also found by Hunt L, et al who found that the presence and severity of symptoms affects compliance and patients adhere to treatment regimens only when symptoms bothered them. Patients considered their conditions serious for various reasons.

Communication problems emerged clearly with all the patients claiming that they hardly received any information about their medical conditions at the CHC. Patients were not continuously informed about changes in their conditions. Studies have shown that doctors may improve compliance by communicating better with patients. A study found that counselling reduced non-compliance by almost 40% (Kellaway G, et al, 1979). If we can achieve the same levels of compliance with proper counseling, then South Africa will have gone some way towards reducing non-compliance, improving the health of the nation and reducing state expenditure on medication.

Knowledge about medication

From the questionnaire, most patients did not know the names of their medication, almost half did not know their medicine dosages and almost a third did not know why they were taking their medication. This indicates a significant lack of patients' knowledge regarding their medication.

In the interviews, patients gave very vague and confusing explanations of how they took their medication. The confusion was exacerbated by the fact that they were

often taking a number of different tablets at different times. Almost all the patients claimed that they were not given any information regarding their medication.

To achieve a high level of compliance, patients need to understand the purpose and details of the therapeutic regimen (de Blecourt J, 1979). The greater the numbers of different medication the doctor prescribes, the more patients omit (Hulka B, et al, 1976).

Family support

Most patients did not have any support with taking their medication. In the interviews, patients expressed trust in information and assistance provided by family members in connection with their medication and medical condition. This supports the suggestion made by a staff member to also educate the patient's family about the medical condition and medication regime. Family supervision has been shown to improve medication compliance (Jilek W, et al, 1970). Medical regimes and counseling are generally done with patients. This has to be reviewed. Similar communities to the one researched have a very different approach to family life. It is more communal and less individualistic. This can also be said for rural communities. This needs to be recognized in how medical assistance is provided.

Side-effects of medication

All the patients indicated that they were not warned of possible medication side-effects. From the questionnaire, more than 40% of the patients experienced medication side-effects and almost all of these patients were bothered by it.

Patients were concerned over dosages and medication interactions because of the side-effects they were experiencing. Some patients stopped taking medication because of the side-effects and none of the patients reported these side-effects to the doctor or pharmacist and continued to collect this from the pharmacy. Most of the patients interviewed, either stopped certain medication or adjusted their own dosages without communicating this with a health-worker.

Many studies have shown that treatment-related side-effects may affect patient compliance and unanticipated side-effects are particularly important because they confuse of frighten the patient (Podell R, et al, 1976). Patients often do not inform the doctor about these side-effects and doctors should look out for these side-effects to make the necessary regimen adjustments.

Service-related factors

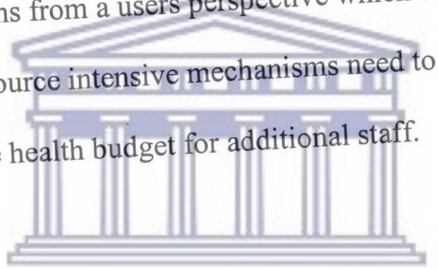
Staff

Most of the patients interviewed suggested that the CHC should employ more staff. In the questionnaire as well as the interviews, patients were generally happy and appreciative of the staff and service at the CHC. Despite this, most patients appeared to have difficulty communicating important information with certain staff members.

Non-compliance may be due to inadequate communication between the health care provider and the patient (le Roux C, 1997). In order to achieve compliance, health personnel must understand the patients' interpretation of their disease. From the

interviews, most patients indicated that they see different doctors on appointments at the CHC. If patients were to see the same doctor at each visit, the doctor-patient relationship may be improved and the impersonality of the public hospital will be reduced (Unterhalter B, 1979). Patients' understanding of disease as well as treatment compliance may therefore be largely improved.

Additional staff is often touted as a possible solution. While this may work, it is not the only solution to understaffed public medical facilities. One patient suggested an allocated time for the old age home to prevent bottlenecks, These are practical simple solutions from a users perspective which can work. Other innovative and non-resource intensive mechanisms need to be investigated in the absence of inflating the health budget for additional staff.



Waiting times

Almost all the patients stated that they waited for less than 2 hours to collect their medication at the CHC. Only 1 patient indicated a waiting period of less than 3 hours. These waiting times seemed reasonable for a public hospital.

In the interviews though, staff and patients referred to long waiting times, particularly at the pharmacy, as contributing to non-compliance. Long waiting times have been cited in the literature as a factor contributing to non-compliance (Ley P, 1988).

Reasons given for non-compliance

In the questionnaire and patient interviews, patients most frequently cited the following reasons for not taking their medication correctly:

- Forgetting.
- Side-effects.
- Having to take too many tablets.
- Due to not experiencing symptoms.
- Being busy largely due to having to care for a family member or other domestic responsibilities.

In the staff interviews staff members provided the following reasons for patients' non-compliance:

- Side-effects.
- Reading difficulties and not understanding instructions.
- Some patients do not eat all their meals and because some tablets should be taken before or after meals, they often skip dosages.
- Lack of support and assistance with taking medication (particularly the elderly).
- Long waiting times.
- Having to take many tablets, which is compounded in the elderly.
- Forgetting.
- Staff attitudes.
- Education level of patients.
- Poor patient/doctor relationship.

Ways to improve medication compliance

In the interviews, staff and patients suggested the following ways of improving medication compliance:

- Education (involve family members too as well as highlight the consequences of non-compliance);
- Providing homecare for the elderly.
- Appointment reminders.
- Recruit more staff.
- Staggered tea- and lunchtimes for pharmacy staff.
- A 24-hour service.
- The doctor to see the Old Age Home patients at the Home or having a special time at the CHC for consulting these patients because they "hold up" other patients.

Social and economic problems like concerns about social grants and the well-being of family members, was a major preoccupation for many of the patients. These patients lived through the worst years of South Africa's apartheid past and what we observe are the results of an inadequate education and health care system. There are no "quick fix" solutions for such deep-rooted problems.

These responses from patients and staff confirm the complexity of the factors influencing non-compliance. The recommendations that follow are based on the reasons given by patients and staff for non-compliance as well as their suggestions to improve this problem which is also highlighted in literature on the subject. The factors include age, culture, socio-economic status, education level, lack of very

basic knowledge of medication and medical ailments insufficient patient counselling and overworked health staff.

CHAPTER 4

Recommendations and Conclusions

4.1 Conclusions

Without considerable revision of the way in which health care is organized, the wastefulness of the present system will continue at a huge expense to the state. Doctors will continue to prescribe, pharmacists to dispense medication and patients will continue to receive medication, which they will use incorrectly. The consequence of this is ineffective treatment and deteriorating health.

The interaction between doctor and patient needs restructuring to a more interactive relationship with mutual participation if the patient is to comply with instructions. This relationship, found in this research, is the most fundamental to a successful health care system. By improving this relationship, the Kensington CHC can also achieve a 40% increase in medication compliance as found by other literature (Kellaway G, et al, 1979).

There is a need for the understanding of the patient's background. Therapeutic regimes often fail to take cognisance of such factors as poverty and low educational levels. To compound this, doctors often confine themselves to the

purely medical aspects of their work. Doctors need to be sensitised and made aware of these conditions in their training.

It must be recognized that there is the likelihood of conflict between explanations of disease and that the patients are products of a community and culture with its own medical belief system. General health education and awareness of medical ailments is desperately needed. This should be a basic life skill.

Although this study has limitations, it represents practical research where the data was collected by one researcher with limited resources. Such work will be important to monitor the effectiveness and quality of primary health care and to ensure that resources are used wisely. The study shows how ongoing monitoring can demonstrate the strengths and weaknesses of health care services.

4.2 Recommendations

As the purpose of this study was to improve medication compliance at the CHC, the recommendations are strategies aimed at addressing the factors that influence non-compliance. The main areas for the CHC to address are:

1. To improve patients' knowledge of their medical conditions and medication.
2. To improve communication between health workers and patients.
3. To monitor non-compliance and develop a means of recalling non-compliant patients.

The following strategies should achieve this:

- Make available simple patient information leaflets on various chronic conditions.
- The doctor should explain in plain and simple language (preferably the patient's home language) medical conditions to patients and family members or friends who accompany the patients to the CHC. This information should be regularly updated and re-enforced as patients' conditions change.
- The doctor should explain the general rationale for the treatment and improve patients' understanding of their medication regimens.
- The medication regimen should be simplified, reviewed with the patient and adjusted to suite the patient's lifestyle.
- Impress on patients that the treatment plan is necessary and effective.
- Explain what the patient should expect and listen to the patient's concerns.
- The pharmacist should accompany all verbal instructions with written instructions.
- Health workers, particularly doctors and pharmacists, should encourage questions, look out for side-effects and monitor medication compliance.
- Improve communication between doctors and pharmacists around patient matters such as side effects and compliance.
- Staff should enlist the family in supervising the patient or encourage patients to associate taking theirs medication with daily habits to prevent "forgetting".
- Develop explicit and simple patient information leaflets on the storing of medicine, side effects and allergies, how to take medicine properly and other important aspects of safe and correct medication usage.

Patient reminders

- Introduce patient-retained records to allow patients to monitor their medication compliance and appointment dates and times.
- Send simple written reminders to patients to alert them of their next visit and to recall them if they missed a visit.
- In extreme cases of non-compliance, a fieldworker should visit them at home.
- The CHC should keep electronic files of patients' information for access by all relevant staff. Care should be taken to avoid breach of patient confidentiality. This system would enable monitoring of side-effects and compliance and patients could be recalled easily.

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Appendix

Consent form

This questionnaire is part of a study done at the University of the Western Cape to investigate the reasons why patients do not take their medication the way it has been prescribed by the doctor.

The outcome of this study will be used to make recommendations on how to get patients to take their medication in the correct way. It will allow the staff at the Kensington Community Health Centre to understand why patients do not take their medication in the way that it has been prescribed and consider ways in which to overcome this.

It is important that patients take their medication correctly in order for the patient to receive maximum benefit from the medication. This can largely improve the health of this community and also save the government unnecessary expenditure on medication.

The questionnaire will take about 10 minutes of your time. The information will be confidential and individuals partaking in the questionnaire will remain anonymous.

.....

Signature of consent of interviewee

Questionnaire

Mark X in the appropriate box.

Case No. ☐

1. Sex

☐ M ☐ F

2. Age (in years)

☐ 0-19 ☐ 20-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 60+

3. What standard (grade) did you complete?

☐ Primary ☐ Secondary ☐ Tertiary

4. Are you employed?

☐ Y ☐ N

5. Do you have to take time off from work to attend the Community Health Centre (CHC) (If yes to question 4 above)?

☐ Y ☐ N

6. How long does it take you to get to the CHC from your home (in mins)?

☐ 0-59 ☐ 60-119 ☐ 120-179 ☐ 180-239 ☐ 240min+

7. How do you get to the CHC?

☐ Walk ☐ Car ☐ Public Transport

8. How much does it cost you to go to the CHC and back home (in rands)?

☐ 0-5 ☐ 5,01-10 ☐ 10,01-15 ☐ 15,01-20 ☐ +R20

9. How long do you spend at the CHC when you have to collect your medication (in minutes)?

☐ 0-59 ☐ 60-119 ☐ 120-179 ☐ 180-239 ☐ 240+

10. Are you happy with the service you receive at the CHC?

☐ Y ☐ N

11. Explain (if no to question 10 above).

12. What condition (illnesses) are you being treated for at the CHC?

13. How many different types of prescribed medication (number of different drugs) do you take daily?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6+

14. How do you take your medication (record medication doses individually)?

15. Does anyone assist you with taking your medication (remind you or give it to you)?

☐ Y ☐ N

---

16. Do you know why you are taking each of the medicines?

☐ Y ☐ N

---

17. Do you have any side effects from your medication?

☐ Y ☐ N

---

18. Do the side effects bother you?

☐ Y ☐ N

---

19. Do you ever skip taking your medication?

☐ Y ☐ N

---

20. If yes (to question 19 above) why?

---

21. Do you take your medication at the correct times?

☐ Y ☐ N

---

22. Why not? (if no to question 21 above)

---

23. Do you take any medication other than your prescribed medication?

☐ Y ☐ N

---

24. Record prescribed doses from patient's folder.

---

25. Record the patient's hospital attendance pattern for the year (from folder).

Patient interviews

Background

- Age, employment status and source of income.

Knowledge about medical condition

- Do you know what medical condition you are being treated for at the CHC? Explain.
- What information has the staff given to you about your condition?
- Which staff member(s) provided you with the most information and what was this?
- Have you ever read up about your condition?
- Have friends/family provided you with any info about your condition?
- Do you think your condition is serious?

Knowledge about medication

- What medication do you receive monthly from the CHC and what is each of it for?
- Do you think your medication "works"?
- Do you have anyone assisting you with taking your medication?
- What info has the staff given to you about your medication?
- Who provides you with the most info about your medication (staff, family, friends)?
- Why do you sometimes not take your medication the way you should?

- Are the times on which you should take your medication convenient for you? If not, what would you suggest?
- How do these times fit in with your daily activities?
- Do you take any medication other than that you receive from the CHC?
- Do you understand the instructions given to you by the doctor or pharmacist?
- Does anyone encourage you to take your medication correctly?

Side-effects of medication

- Do you experience side-effects from your medication and what are these?
- Have you reported this to any of the staff? To whom and what was the result?
- If not, why did you not report the side-effects?
- Have you told anyone else (family, friends) about the side-effects?
- Has any of the staff warned you about expected side effects and what have they told you?

Access

- Do you experience problems getting to the CHC (transport, distance)?
- Do the opening times (times during which you can collect your medication) suite you?
- Do you have to take time off work or make any special arrangements in order to collect your medicines?
- Do you find the waiting time when you collect your medication too long?
- How do think the CHC/staff can improve their service?

Staff

- Do you find staff helpful and pleasant to deal with?
- Are you able to speak to them if you have a problem? To whom?
- Are you happy with the staff and service that you receive at the CHC?
- How can the service be improved?

Staff Interviews

- What is the staff member's job/role at the CHC?
- What are the reasons for patients not taking their medication correctly?
- How do you think patients could be assisted to take their medication correctly?
- Do you provide patients with information regarding their condition or medication?
- What kind of information do you provide and do patients welcome this?
- Do you encourage patients to report side-effects?
- Are there any cultural or behavioural factors that may affect the way patients take their medication?
- How are patients followed up if they miss appointments?
- Is there any way in which it is detected that patients are not taking their medication correctly?
- How do you think patient medication compliance may be improved?
- How do you think the CHC can improve this medication compliance? What role can staff possibly play in this?
- Do you think there is enough staff to spend time offering patients advice, etc?

Table 1: Sex, age, education and employment status of Questionnaire sample

Case no.	Gender	Age	Education	Employment
1	F	60+	Secondary	N
2	F	40-49	Secondary	Y
3	F	40-49	Primary	N
4	F	40-49	Secondary	N
5	F	30-39	Secondary	N
6	M	60+	Primary	N
7	M	60+	Primary	Y
8	F	0-19	Secondary	N
9	F	20-29	Secondary	Y
10*	M	20-29	Secondary	N
11	F	30-39	Secondary	Y
12	F	50-59	Primary	Y
13	F	30-39	Secondary	N
14	M	40-49	Secondary	N
15*	F	50-59	Secondary	N
16	M	60+	Primary	N
17*	F	50-59	Primary	N
18	F	60+	Primary	N
19	M	60+	Primary	N
20	M	60+	Secondary	N
21	F	60+	Primary	N
22	F	30-39	Secondary	Y
23*	F	60+	Primary	N
24*	F	50-59	Secondary	N
25	M	50-59	Primary	N
26	M	40-49	Secondary	N
27	F	40-49	Secondary	Y
28	M	30-39	Primary	N
29	M	50-59	Primary	Y
30*	M	60+	Secondary	N
31	M	40-49	Secondary	N
32	F	50-59	Secondary	N
33	F	40-49	Primary	Y

Table 2: Sample breakdown according to Age group

Age Group (years)	No. of Patients	Percentage (%)
0-19	1	3
20-29	2	6.1
30-39	5	15.2
40-49	8	24.2
50-59	7	21.2
60+	8	30.3

Table 3: Reasons mentioned for Non-compliance

Reasons	Times Mentioned
Side-effects	14
Forget	13
Patient is too busy	7
No symptoms	4
Fear of long term use	3
For maximum benefit	2
Feeling unwell	2
Try to wean herself	1
When patient drinks alcohol	1