# EFFECT OF PHYSICIAN-PATIENT CONSULTATION MODEL ON CLIENT SATISFACTION, KNOWLEDGE AND COMPLIANCE AT NGAIRA HEALTH CENTRE, NAIROBI, KENYA

**BY**

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**I57/10570/06.**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF PUBLIC HEALTH IN THE SCHOOL OF HEALTH SCIENCES OF KENYATTA UNIVERSITY.**

**JUNE, 2009**

## DECLARATION

This Thesis is my original work and has not been presented for a degree in any other University.

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This Thesis has been submitted for examination with my approval as University Supervisor.

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## DEDICATION

To my wife Milly, my sons Chris and Lewis and my brother, Oking whose undertakings in the process of finalizing this thesis were sacrosanct.

## ACKNOWLEDGEMENT

"Am baptizing you with water, just to prepare the way for the one to come to baptize you with fire and the Holy Spirit". This is a quote from the Bible about the works of John the Baptist.

On the same strength, I salute several dignified people for their outstanding contributions in preparing the way for me. I thank the chairman of Medical Laboratory sciences, Dr. John N. Mbithi, who has been my supervisor for his great contributions in my understanding of Epidemiology and Research experiences and Techniques. Public Health graduate school Lecturers and the Chairman of the Department of Public Health, Dr. Mwanzo, were approachable they enabled me to beat the logistics involved in the study and they offered positive technical criticisms of academic nature. My acknowledgement also extends to the University as a whole and the school, of Health Sciences for providing a conducive and enabling learning environment.

I would also like to acknowledge the pivotal role played by the Nairobi City Council and its Medical Officer of Health in accepting to provide a study site for my research. Ethical approval and advice by the Pumwani Maternity Ethical Committee through the Medical Superintendent was useful. Lastly, the facilitators involved in the study including Mr. Ayieko of nursing sciences of the University of Nairobi and Mr. Oking Okoko of the department of Physics of Jomo Kenyatta University offered additional technical and monetary advice.

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## 1.1 OPERATIONAL DEFINITION OF TERMS

**Compliance:** The extent to which patients follow treatment instructions on prescribed medication.

**Health Literacy:** The degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions.

**Knowledge**: It's the expertise and skills acquired by a person through experience or education.

**Medical consultation**: It is the seeing of a patient by a healthcare provider with the aim of understanding the medical problem so as to solve it.

**Medical malpractice:** It is professional negligence (by healthcare provider) that causes injury.

**Model**: Its a guideline containing the essential structure of a physician-patient interaction in a consultation in real world

**Physician**: A person licensed to practice medicine or a person trained in the art of healing.

**Satisfaction**: Fulfillment or gratification of desire, need or appetite.

## ABBREVIATIONS

| | |
|---|---|
| AIDS | Acquired Immunodeficiency Syndrome |
| ARV | Anti-Retroviral Drugs |
| C.B.S | Central Bureau of Statistics |
| CBD | Central Business District |
| C.C.C | Comprehensive Care Centre |
| C.S.D.C | Citizens Service Delivery Charter |
| D.H.M.T | District Health Management Board |
| D.M.O.H | Deputy Medical Officer of Health |
| HIV | Human Immunodeficiency Syndrome |
| K.M.P.D.B | Kenya Medical Practitioners and Dentists Board |
| MDGs | Millennium Development Goals |
| MDR TB | Multiple Drug Resistant Tuberculosis |
| M & E | Monitoring and Evaluation |
| M.O.H | Medical Officer of Health |
| M.O.H. K. | Ministry of Health Kenya |
| MEMS | Medical Event Monitoring System |
| MRSA | Methicillin Resistant *Staphylococcus Aureaus* |
| N.C.C | Nairobi City Council |
| NHSSP-II | National Health Sector Strategic Plan-II |
| N.H.B | Nairobi Health Board |
| P.I.C | Preliminary Investigation Committee |
| SPSS | Statistical Package for Social Sciences |

| | |
|---|---|
| V.C.T | Voluntary Counseling and Testing |
| W.H.O | World Health Organization |
| WHPA | World Health Professional Alliance |

## ABSTRACT

The study was occasioned by the resultant effect of poor quality service provision in most health institutions in Kenya. Patient satisfaction after physician consultation, health literacy and patient compliance to medication have been noted to be very low at <50%, 23% and 50-66% respectively. Physician Patient consultation models to improve these indicators have been suggested in various set ups, but they are not suitable for our set-up and the concept of consultation modeling has not been established locally. The main objective was to test the usefulness of the proposed innovated model. This was by measuring satisfaction, knowledge and compliance after physician consultation. It was a randomized clinical trial with an after-only with control design. The study population was made up of the 3426 patients/clients who attend the Ngaira Health Centre monthly. A total sample size of 338 was used. Nine physicians participated. The structured questionnaire and the semi structured telephone interviews and or face to face interview were done for data collection. SPSS software was used to get inferential data through chi square, Pearson correlation and t-tests. Analysis of data resulted into means, variances, Odds ratio, Confidence Intervals, graphs and pie chart. The levels of satisfaction, knowledge and compliance were noted at 35%, 25.5% and 50.38% respectively in control group. Satisfaction was mainly undermined by lack of medicines, narrow range of services provided and long waiting times, while poor knowledge was due to inadequate physician-patient interaction. The low Compliance was influenced by poverty, ignorance and poor physician-patient interaction. The experimental group had a significant improvement in the three variables at 53.5%, 57.23% and 68.9% respectively and at a significance of ($\chi^2 = 216$, df = 4, $p < 0.05$), ($\chi^2 = 12.174$, df = 1, $p < 0.05$) and ($\chi^2 = 7.18$, df = 1, $p<0.05$) respectively. This group results also showed females giving significantly good scores for grooming of the physician and those who appreciated their hairstyle and smartness. The level of the three quality service indicators in the health institution was low. The model was able to significantly improve them. It is recommended that the model should be adopted for use by physicians. The three service indicators should be measured regularly. A multicentred phase 3 trial should be done to aid generalizability of the model.

# CHAPTER 1

# INTRODUCTION

## 1.2 Background to the study

Inefficiency in healthcare delivery in Kenya, especially in public health institutions is evidenced by unavailability and malfunctioning of equipments and machines, lack of curative care items such as drugs, x ray films, theatre drugs and equipment, laboratory reagents. This is further complicated by long queues at outpatient departments, long waiting lists and time, bed sharing, poor or inappropriate diagnosis, poor staff patient relationships, unproportionately high charges in the better private institutions (Owino, 1997). These often result into poor attitude and relations between the healthcare providers and users. Hence most public healthcare facilities do not rank high in household choice of health providers and neither do the private facilities that deliberately charge fees which are prohibitive to the poor proportion of the society (Deolalikar, 1997). In all, the manifestations in the health sector leaves the user of the services unsatisfied, less informed of the prevailing health condition and lastly poor compliance with health instructions due to the above multifaceted problems.

Over the past half a century, due to changes in health technology, law, education, research and information technology, the shape of physician patient interaction has changed from the traditional model of active-passivity to the revolutionary concept of active patient participation (Flouke, 2002). This change is slow in the developing countries. Today's patient is more knowledgeable and demand quality services given their relatively good exposure to information and legal redress. This becomes more pertinent considering that health is a right, not a privilege and the society will not accept any malpractice when it comes to preservation of life.

Physicians and health institutions are thus expected to offer health services that result into customer satisfaction, improved health literacy and healthcare delivery. These concepts are captured well by the Government of Kenya in the formulation of performance contract for health administrators whereby restoration and building trust in those institutions is expected to be through promotion of quality service delivery (Leroy & Prajapati, 2007). One critical innovation of the performance contract document is the citizen service delivery charter. The charter has a radical paradigm shift in service delivery since it evaluates service delivery through the eyes of the customer. The requirement here is annual customer satisfaction surveys. The customer is the yardstick of performance measurements. It is also notable that in health, the patient can only be satisfied if he is well informed (Vinen, 2002).

It is against these that the Kenya Medical Practitioners and Dentists Board in a legal notice number 132 of 25th October 2005 made continuing professional development a mandatory requirement for medical practitioners (Kenya Medical Practitioners and Dentists Board, 2005). The Board realized that medical personnel, besides training in medical practice, needs professional development in managerial, social, psychological and personal subjects for optimal patient care. Patients are increasingly demanding better quality services and better communication with physicians in pursuit of better management of their own health as well as satisfaction and compliance to physician instructions.

It is worrying that in the past 10 years, the number of reported patient complaints in Kenya have raised 23-fold as shown in table 1 below, and for every reported complaint, several others go unreported or are sorted out through legal channels.

| Year | No. of complaints. |
|---|---|
| 1998 | 3 |
| 1999 | 6 |
| 2000 | 11 |
| 2001 | 8 |
| 2002 | 11 |
| 2003 | 26 |
| 2004 | 40 |
| 2005 | 46 |
| 2006 | 63 |
| 2007 | 70 |

**Table 1.1 Trends of reported and recorded complaints by patients against physicians in Kenya**

**Source: (Kenya Medical Practitioners and Dentists Board, 2007)**

Half of the complaints that were investigated and finalized by the preliminary investigation committee of the Medical Board could be attributed to lack of patient satisfaction with the treatment provided by the doctor and inadequate information given to the patient (Kenya Medical Practitioners and Dentists Board- PIC, 2007).

It is thus notable that physician patient interaction attributes to malpractice suits can reduce patient complaints by over 80% (Fishbain *et al*, 2007). No effort should then be spared in providing good service to the patient during a consultation process. Patient care is complex and needs much more than medical training. The physician must understand the medical, social, psychological, physical, cultural, emotional, economic and the political patient. The aim is to

improve patient satisfaction, education and compliance. Service delivery the world over is today pegged on customer (patient/client) satisfaction, not providers' standards (Leroy and Prajapati, 2007).

The study was occasioned by the requirement of citizens' service delivery charter, inefficient service delivery and the supremacy of modeling a physician-patient communication process as a milestone of achieving better satisfaction and knowledge or health literacy. These are the yardsticks for measuring quality physician consultation process.

### 1.3 Statement of the problem

No consultation model, tested and adaptable to our set up, exists in use in Kenya today despite the fact that patient satisfaction, knowledge and compliance to physician instructions is way below the expected standards. This is more necessary given the inefficient services and the generally inadequate resources. In a consultation, it is then left to the physician to use the interaction style deemed fine by the personal attributes including the emotions, values, beliefs and skills, all of which vary from physician to physician. A guideline is thus needed to mitigate these variations to optimize consultation.

It is thus not a surprise that in developing countries, an overwhelming 77.7% of patients have poor knowledge of their illnesses even after visiting a physician for treatment (Twebaze, 2007). For example, poverty alone cannot explain the fact that only 2% of women in Nairobi have regular Ca-cervix screening as compared to the 85.5% in the U.S. (Gichangi *et. al*, 2003). Lack of Medical Knowledge is a major factor. This fact is also notable in uninformed patient demands for some form of treatment like injections. For example, it is notable that 16 billion medical

injections occur yearly in developing and transitional countries (WHO, 2005). Ninety to ninety-five percent of these are therapeutic, 5% to 10% are for immunizations. Of these therapeutic injection, 70% are unnecessary, oral injections could be prescribed. Hence in Africa, the burden of Hepatitis B Virus, Hepatitis C Virus and HIV due to unsafe injections is 10.9%, 16.4% and 2.5% respectively, while in Europe, it is 0.9%, 0.9%-21.2% and 0.6% respectively (Hauri, 2004).

In 2007, the Afrihealth Pan African conference on public health education held in Pretoria, South Africa, in the month of June, noted that communication between the health care provider and the individual patient was noted to have a long lasting transgenerational effect on improving health impact of society (Suri *et. al*, 2007). Communication and educational intervention has resulted in significant improvement in disease intervention in the developed world. This becomes more relevant in developing countries where gender discrimination, ignorance and lack of infrastructure for practical interventions are major drawbacks.

At best, patient satisfaction index in Kenya is 67%, and it is below 50% in public health institutions (Infotrak, 2007). This explains why public hospitals are not the first institutions of choice for the middle and upper class Kenyans. Patients complaints are directly related satisfaction after a consultation (Vinen, 2002).

Compliance to physician instructions and especially to taking medications is 50-66.1% (Molino et al, 2004). This becomes a concern considering that we are experiencing serious public health problems due to emergence of multi-drug resistant tuberculosis, ever increasing cost of treating

malaria and increasing cost of ARVs. All these have been blamed mainly on resistance due to poor compliance and use of medications.

### 1.4 Purpose of the study

To understand the satisfaction, knowledge and compliance status of patients attending the Ngaira Health Centre of Nairobi City Council and to test the usefulness of the proposed consultation model in improving the three variables.

### 1.5 Research questions and hypothesis

The main questions which were of concern were

1. What is the level of satisfaction of patients and clients attending the health centre?
2. How compliant are the patients to medications?
3. What is the level of knowledge of the clients after consulting the physician?
4. What is the effect of the consultation model in improving satisfaction, client knowledge and compliance to medication?

The null hypothesis was that

1. The level of satisfaction, knowledge and compliance after physician consultation is not low.

2. The Consultation model does not increase the level of client satisfaction, knowledge and compliance to medication after consulting the physician.

### 1.6 Objectives

The broad objective is to test the effectiveness of the physician-patient consultation model (which I have developed) in terms of its influence on client's satisfaction, knowledge and compliance to medication after the consultation.

**The Specific Objectives of the study were,**

1. To determine client satisfaction after consulting a physician.
2. To establish patient or client knowledge on the condition that enabled him to consult the physician.
3. To measure patient compliance to prescribed medication.
4. To establish the usefulness of the consultation model with a view of devising a superior consultation process for use by physicians.

**1.7 Significance of this study**

The study provided and presented an in-depth construction of a consultation guideline which enabled the physicians to easily capture important interests and history of a patient, thus maximizing the process of consultation to both the patient and the physician. It also measured satisfaction and knowledge of patients which were to form the basis for the formation of the institution's service delivery charter for performance contract document.

The study established compliance level to medications by the patients attending this facility. This would shed light on impediments to judicious use of medicines and factors related to drug resistance especially in the study area.

**1.8 Delimitations and Limitations**

The study, being a clinical trial was done within the context of a health institution whereby sampling could have been interfered with by emergency cases which needed prompt medical attention, refusal to consent by some clients and aspects like trying not to prolong waiting time of the patients. These were however very minimal. Literature review was limited in that in the local set up, that is Kenya, the idea of a consultation model has not been tried. Besides, the trial was done only in the single health facility. This meant wider usage is still limited.

The study however could have been influenced by the following weaknesses.

1. It relied heavily on information relayed by the patient or client. Some patients or clients could actually give wrong information for fear of victimization by the hospital staff.

2. The administration at the study health centre wanted full information of the study before permission was granted, this might have pre-empted some of the findings.

3. Some of the facility's staffs routinely changed departments and positions during the study. This may have affected the study.

4. The study was also limited to the physicians and the patients, though there are several participants who were not involved directly but could affect the results. For example the nurses, laboratory technicians and the pharmacists being aware of the study, might have improved their level of service delivery.

5. The Model cannot be applied uniformly to all patients at the time of consultation. Some critically ill patients need short cuts in consultation to enable resuscitation.

6. Other limitations included failure of clients to participate by not consenting, delaying of the study for minutes or hours during patient emergencies and relying on staff members that might be uncooperative were experienced.

**1.9 Assumptions**

1. Rapport was made with the patient after proper informed consent. The information provided by the patients was then considered reliable.

2. The hospital administration and the physicians who were trained kept the details of the study confidential.

3. Poverty in terms of lack of financial resources led to loss to follow up for compliance studies. It was assumed the information gathered from the telephone calls were reliable.

4. The study assumed nothing out of the normal routine occurred during the study period, for example, patient flow to the health facility was assumed normal.

### 1.10 Conceptual framework and Theoretical framework

The model envisages and promotes changing roles (though not absolute) in the consultation process namely; partnership, introduction, history/examination, shared discussion, informed decision and summary. The physician takes lead in partnership, examination and summary, shared discussion is for both while the patients lead in the rest.

The physician and the patient each has some knowledge, skills and experience, and they both interact in an environment of confidentiality, privacy and several conflicts. This interaction is confounded by personal attributes (gender, race, sociocultural, education, needs, and emotions).

The physician knowledge lead to treatment effect and it is assumed the physician is competent by training. His or her skills including communication, perceptual, psychomotor and listening lead to placebo effect. The environment of interaction should be conducive for sharing of information.

Patient knowledge and skills results mainly from previous experiences, the media, level of education and the effect of the surroundings. These have an influence on patient characteristics and thus determine consultation style.

The takes cognizance of patient knowledge so as to empower him, it seeks public health basis of medical problem, inculcates many forms of communication and assumes good professional knowledge and discourages poor conditioning. Explaining to the patient cause, transmission and prevention of disease are medical issues, but impact greatly on the disease dynamics in the community.

Communication can be verbal, non verbal or silent, and all these are important to both the provider and the patient. Poor condition is at times rampant and it involves getting used to doing basic mistakes of professional or otherwise as a way of avoiding the right procedure for purposes of self good. For example reporting to work late simply because patients are not complaining or failing to examine a patient assuming all will be right.

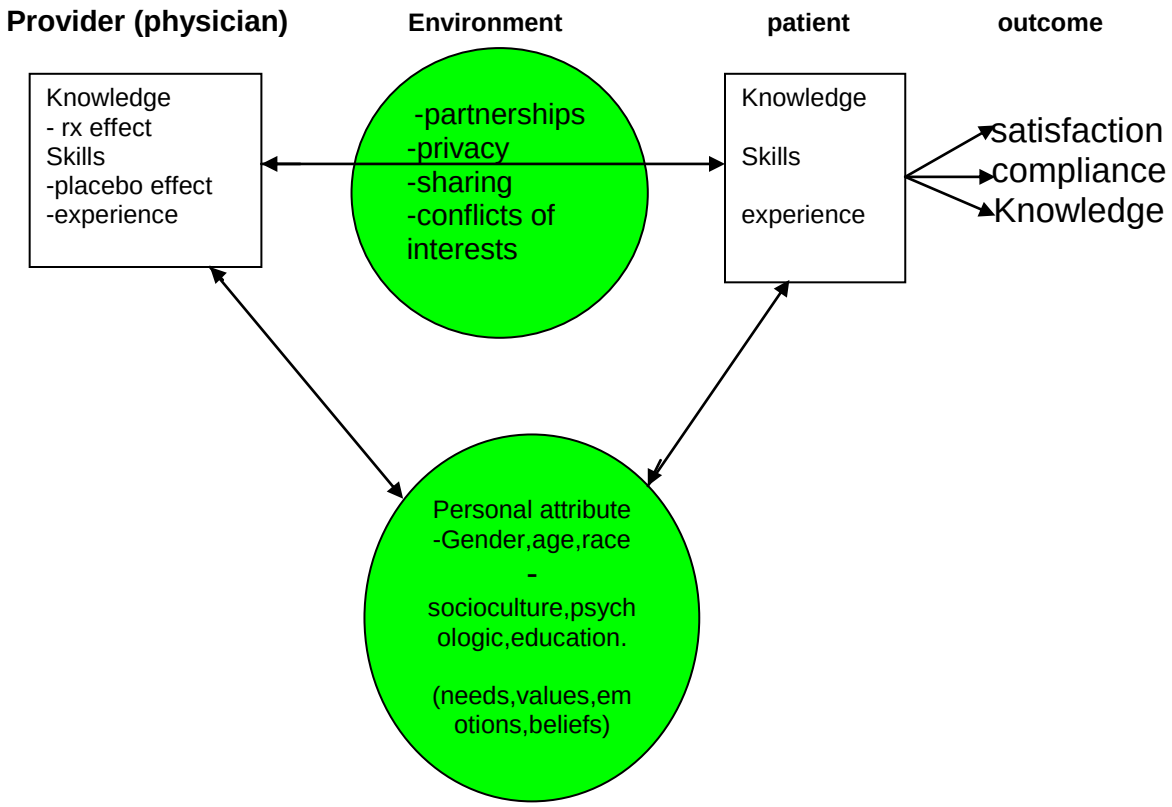


**Figure 2.1**: Proposed Consultation Model.

**Theoretical Framework**

The model is created in line with the input output persuasion model theory (McGuire, 1969). This theory emphasizes the hierarchy of communication effects, and considers how various

aspects of communication such as message, design, source and channel as well as receiver characteristics affect the behavioral outcome of communication. What people, and here patients, want are interfaces that understands them and that are natural and powerful, that adopt to their needs, that helps them focus their attention and memory and that are pleasant and entertaining.

Patients prefer use of natural language, appreciation of emotional aspects and the recognition of the social context. In this framework, there are the health provider, the patient and the interface between them. This interface is the communication process, or the attitudes. This interface should have the qualities for changing the provider output to the required and ideal patient (receiver) input.

# CHAPTER II

# LITERATURE REVIEW

## 2.1 Patient/Customer satisfaction

A measure of satisfaction connotes quality of healthcare in the sense of staff attitude, communication skills, physical state of health facilities, nursing care, drugs, equipments, accuracy and timeliness of diagnostic tests. It thus encompasses factors that ultimately discourage healthcare seekers from coming forward for prompt advice and treatment.

A lot about satisfaction is known to affect quality of healthcare. Information about it has been used mainly in the developed world to improve quality services (Leroy and Prajapati, 2007). However, its measurements in most third world countries are limited to policy documents with minimal implementation at health facility level.

In Kenya, the National Health Sector Strategic Plan I (NHSSP-I) of 1994 had a detailed report on how to improve quality service delivery. It recognized the role played by the Customer satisfaction in Quality Assurance Support System. Nothing much was achieved and this necessitated the NHSSP-II 2005-2010 (MoH, 2005). The NHSSP-II noted that Commodity supply Management to ensure that demand driven pharmaceuticals and equipments are sufficiently available are important aspects in patient satisfaction and thus quality service. It also recognized that failure of NHSSP-I was partly due to lack of MOH regulatory capacity and poor implementation of policies. To date, no public health facility has regular quality service assessment.

Quality service assessment by way of measuring satisfaction has been done erratically in few private health institutions with the aim of understanding their competitiveness in the sector (Infotrak, 2007) and such reports are never released to the public. At best, patient satisfaction index in Kenya is 67% in private institutions and it is below 50% in public institutions (Infotrak,

2007). This calls for regular measurement to improve quality of service delivery. This is part of the reason for the introduction of performance contract in the public health sector in Kenya, with a demand for citizen's service delivery charter.

Continuous satisfaction measurement has enabled the University of Nairobi to improve its health services from 64% in the year 2005/2006 to 74% in the year 2006/2007 (University of Nairobi, 2007). Such reports are for internal consumption and have not been publicized. They are regularly required for use by the patient to asses quality service delivery.

Service delivery is increasingly being seen through the eyes of the customer and satisfaction is gaining new legitimacy (Leroy and Prajapati, 2007). It is notable that patient complaints are directly related to the quality of service delivery and thus the satisfaction levels (Vinen, 2002). Tackling issues of measuring satisfaction will minimize patient's complaints about service delivery especially in the public sector. Government facilities do not rank first in household choice of health providers because of poor satisfaction with the services offered (Deolalikar, 1997).

### 2.1.1 Measurement of Satisfaction

The understanding of the concept of satisfaction is critical in the setting of the health sector. Its determinants to individuals are usually few but its theoretical references are widespread (Esperediao and Trad, 2006). For example an institution which is otherwise having good quality

services may score minimal in general satisfaction even if only one determinant is dissatisfying. Analytical usefulness of satisfaction should only be limited to the context discussed.

There are several ways of measuring satisfaction in the setting of healthcare; the out measures, the 10 point anchored numerical scale and the likert scale, all of which are summated scales. The first and the last are very similar, since the responses follow the 5-point ratings of poor, fair, satisfactory, good and excellent, and then strongly disagree, disagree, undecided, agree and strongly agree respectively. They use areas of measurement like providers technical skills, personal manner, explanation of care and time spent during visit.

The 10 point scale has 10 items to be answered in a 10 point anchored numerical scale.1 stands for not satisfied, 10 stands for fully satisfied (Ivy et al, 2006). The 10 point scale is better than the likert scale because the respondent can give rating without needing to read description of each response, and it avoids skewedness caused by the choice of the number of response choices.

It also eliminates the sense of victimization the respondent might have when indicating consecutive statements of "strongly disagree" or "undecided". It can be modified by having negative questions for respondents who might want to please the doctor or the administrator of the questionnaire by filling in only positive responses. It however needs advanced analytical skills as compared to the others, including the likert scale. Other measurement scales like the cumulative scales and the differential scales are time consuming and not conducive for measuring satisfaction in this context.

**2.2 Patient Knowledge**

Patient knowledge is the most important part of the wider concept of health literacy which encompasses cultural and conceptual knowledge, oral literacy including speaking and listening skills, print literacy including writing and reading skills and lastly, performing basic computation of health information (Baker, 2006). Health literacy is thus broader than health knowledge.

The result of good knowledge is health literacy. Apart from good health, literacy is the other important asset a patient must posses. An infant in Kenya gets malaria about 4.5 times in a year and mitigating measures instituted by the parents/guardians are usually not adequate (Central Bureau of Statistics, 2003). This is partly as a result of poor literacy on the disease, transmission and prevention. Some communities even associate mosquito nets with cultural taboos.

People with low literacy have four times annual cost of health care than the general population and are twice likely to develop complications from preventable diseases (Schillinger, 2002). War on Tuberculosis, HIV and other communicable diseases which are a burden mostly to the third world will be successful if health literacy in the population is raised to a critical level

Apart from being in good health, a person should have adequate health education because it assures sustainability of positive health (Suri *et al*, 2007). However health education even by physicians to patients is very low, about 22.3% (Twebaze, 2007). This is worse in the third world where illiteracy levels are high and health resources are limited.

Serious gaps exist in the concept of health knowledge. Worldwide, it is a concern with nearly half of all American adults, which is 90 million, having difficulties in understanding and acting upon medical information (Osborne, 2004). At the same time, the concept has not even taken ground in Kenya and Africa in general. Health providers are called upon to communicate in ways patients can understand, be it in writing, talking, pictures stories or using models in consultation. At times, medical personnel are known to write ineligible prescriptions to patients. How will the patients in such situations keep abreast with the first changing medical arena?

Several barriers to utilization of health services have been noted. Significant predictors in this respect are health illiteracy and patient satisfaction (Westermann, 1998). No emphasis has been put on the importance of health literacy and the information available is scanty and not regular. The patients think they have very minimal role in healthcare and everything is referred to the professionals. Despite the assertion in the MDGs, health education has been construed to mean academic education, and currently, very few countries, if any can quantify health literacy of their population.

### 2.3 Compliance to Medication

The problem of compliance is real and compliance to physicians' instructions and especially to taking medicines is only about 50-66.1% (Molino *et. al*, 2004). The problem is multifactorial and includes the deficiencies on both the provider and the patient and environment under which compliance is accomplished.

The negative connotation exhibited by compliance is that it is upon the patient and not the health care provider's duty to take the medication well. It is this negative aspect that has given rise to a more acceptable term "adherence". This term implies that the healthcare provider also has a role to play in accomplishing compliance. However, most literature, this included, still use the term compliance instead of adherence, avoiding the negative connotation. Compliance is influenced by several factors which could be duration and time of dosing, drug related factors like form of drug, healthcare provider related factors like the communication skill of the healthcare provider, patient related factors like age and institution factors like lack of medicines.

So far, as mentioned, compliance averages tend to be very low. The complications arising from poor compliance have serious repercussions to public health. Some of these are the development of resistant pathogens like the multi-drug resistant tuberculosis and gonorrhea, poorly controlled chronic illnesses like diabetes, and increased cost of managing HIV-AIDS and difficulties in controlling communicable diseases (Revanthi and Musoki, 2000).

### 2.3.1 Measuring Compliance

Several methods have been used, and none is superior to the others in all the circumstances (Morris and Schulz, 1992). The methods can be direct or indirect. The direct one involves detection of a chemical metabolite or marker in a body fluid. However, this is not available to all medications. The method is invasive and may not account for the variability of pharmacokinetic factors of medication and individuals, besides being difficult and costly.

The indirect ones involve several ways. Patients' interviews where patients declare their compliance has been used. It is the easiest but vulnerable to overestimates by the patients. This then gives in to the most used way, and that is the pill counts. This one tends to be objective, but time consuming because the patient has to be traced and all pills counted.

The other way that has been used is the prescription refill dates whereby the pharmacists look for when the patient refilled the medication and compares with the amount of medicines given in the previous visit. This needs a well kept database and can be very erotic. The last and the most technical way is the medication event monitoring system (MEMS). It uses a microprocessor technology to count the number of ways the medicines container was opened in removing the dosages. It is very accurate but white coat compliance whereby the patient opens the container technically without taking the medication is common.

Other less used measures include use of patient or prescribed diaries and outcome measures.
Most of these measures are difficult to apply in resource poor settings where the infrastructure and availability of drugs are major issues. The cheapest method are patient interviews, but where are the patients because after treatment, it will be unlikely that most will voluntarily go back to hospital given the fear of visiting hospitals, costs of transport and ignorance.

### 2.3.2 Methods of improving compliance

Several ways of improving compliance for people in different circumstances are available. Simple measures such as taking medication according to instructions and having reminders in place like a mobile ring tone are very important. In addition, decreasing the effort required to

take the medicines or of accessing them is crucial. Some packaging are very difficult to open, requiring skill, while some medication must be kept in a fridge which means they may not be available when one is away.

The choice of a convenient form of drug and duration are some of the important areas that patients ask for, in that patients would like for example short duration period of medication, with a less frequent dosing. The convenience here is closely related to the cost of the medicines and therapies as these are prohibitive.

Good communication and information about the effects; both positive and adverse effects of a medication would boost the confidence of the patient in completing the medication as is required. Both of these aspects are preponderant concerns of the consultation model. However, institutional factors like lack of medicines are difficult to sort without invoking relevant policy areas.

**2.4 Physician-patient relationships**

Thirty one point six percent (31.6%) of patient's complaints are related to poor communication and relationships, wrong attitude, discourtesy and rudeness while Proper communication significantly reduces complaints by 73.6% (Taylor *et. al*, 2002). The style of this relationship determines the extent to which reasons for the consultation are revealed and solved (Ahlen, 2007). This forms a major pathway for the individual hence the community well being.

Several interaction styles between the patient and the physician have been identified. Some of these are person focused style, biopsychosocial, biomedical and high physician control group. The first one involve physicians who are more focused on the person than the disease, while the second one involve those more focused on patient disease, but the physicians elicits psychosocial clinical information. The model inculcates both these two interaction styles since they achieve optimal patient satisfaction.

The last two styles involve physicians who are more focused on patient disease without eliciting psychosocial information and those who dominate the encounter and disregard patient agenda respectively. These are less favorable since they are not very friendly and are authoritative respectively.

To supplement the interaction styles, Physician-patient encounter crosses two dimensions.

1. Instrumental. This encompasses competence of physician in performing technical aspects of care such as history taking, examination, laboratory diagnosis and prescriptions. This aspect is learned to a greater extent by professional training.
2. Expressive. This reflects the art of medicine including affective portion of interaction such as warmth, empathy, communication and approach. This is the domain mostly affected by personality traits and beliefs. It is the domain that contributes mainly to dissatisfaction, hence patient's complaints (Carol and Richard, 2006).

This second domain is what fails most relationships. It is the domain taken care of in the proposed model. The Hippocratic Oath which doctors swear on completion of their training

undermines this domain. It has weaknesses including the fact that it is doctor centred and is silent about the patient's rights.

### 2.5 Consultation Models

Changing technology and times dictates that physicians change in the way they interact with patients. The traditional model of activity- passivity whereby the physician does something to the passive patient has been changed to active patient participation. Again the model of guidance and cooperation whereby physician tells patient what to do and patient cooperates has been changed to the model of mutual participation whereby the physician takes the patient as a partner and helps the patient to help him/herself. It is patient centered. Some of the most known modern models in the physician-patient relationship include the following:

#### 2.5.1 Paternalistic model

In this model, the physician acts as the patient guardian, and articulates what is best for the patient. The problem with this is that the physician can be authoritative. It is good for patients who are not knowledgeable.

#### 2.5.2 Informative model

The physician treats the patient as a consumer. The physician presents relevant information to the patient, the patient chooses then the physician executes. The patient who does not understand the information in the right context might end up choosing wrong options.

#### 2.5.3 Contractual model

The physician and the patient enter an agreement to pursue mutually acceptable goals using mutually acceptable means. The doctor provides technical expertise and skills. The patient or the doctor has the right to withdraw. The model has no trusting relationships and is too legalistic (Kaplan *et. al*, 2002).

### 2.5.4 Concordance

This idea was mooted by the Royal Pharmaceutical Society of Great Britain in response to the fact that over the years, compliance to medications was very poor. It is an approach to prescribing and taking medicines. Although it is reciprocal, it is an alliance in which the healthcare professional recognizes the primacy of the patient's decision about taking the recommended medicine. It shifts to a patient centered role, reflects sociocultural norms, emphasizes patient autonomy, shared decision making, patient centeredness and partnership, information choice and holistic care.

Concordance is a good idea, though it has not been operationalised. It gives too much say to patients in prescriptions, rendering the physician less critical in as much as he/she is the one to decide which drugs are appropriate for the patient. This approach emphasizes compliance to medicine in as much as we know patient satisfaction and education are prerequisites to compliance.

The proposed consultation Model is oriented to fit into any respective set up provided aspects to do with psychosocial dimensions, cultural issues, literacy levels, good communication skills and good ethical practice are recognized and used. This is in recognition of the fact that most models

are specific to their set up of origin and need regular improvement with changing times. This Model is conducive to the resource poor third world.

Incorporating an understanding of all the concepts in the model will minimize complaints and maximize satisfaction, leading to better quality care. It is also pertinent to address issues related to complaints like the physician patient relationships in order to minimize them. The status of health care liability climate is worsening for physicians. Fewer of them are moving into higher risk specialties, access to emergency care has been affected negatively at the National Health systems of Britain, professional liability risks are too high, pushing the cost of medical care to the highest levels even on simple medical procedures (James and Maggie, 2007). The model takes cognizance of these in the third world set up.

# CHAPTER III

# MATERIALS AND METHODS

## 3.1 Introduction

This chapter highlights processes, principles and procedures used in the study. The principles of randomization and replication were used in all the stages of the design.

## 3.2 Research design

It was a randomized clinical trial with post test only controls design (Nyandemo, 2007). An exit questionnaire followed by either telephone interview or face to face interview was used to

compare the consultation Model and the routine in the clinic. The controls were patients seen under the routine or the usual health centre mode of physician consultation while the experimental group was those seen by physicians who had undergone the two weeks consultation model training.

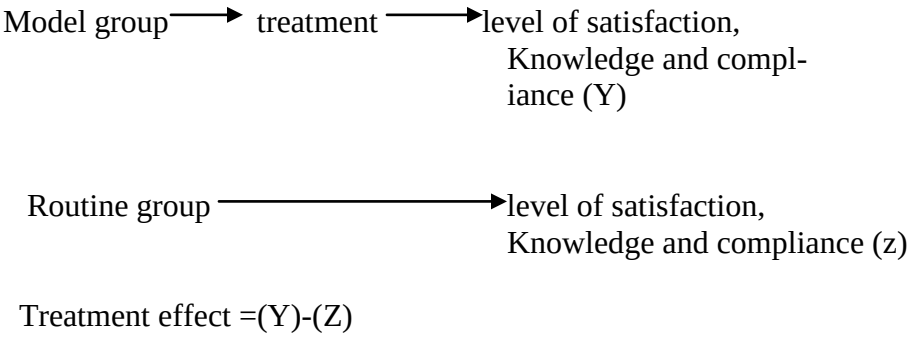


**Figure 3.1:** Diagrammatic presentation of research design.

**Source (Kothari, 2005)**

This informal design does not have problems of passage of time. It is suitable because the test groups are identical with respect to the phenomena being tested. It is cost-effective, does not consume much time and exhibits minimal risk of exposing the questionnaire more than once to a patient or even to the health providers. It thus eliminates biases and confounders.

This design is superior to the before and after with control design, which is costly, time consuming and practically impossible to accomplish because the patient should not be exposed to the questionnaire more than once. The before and after with control design adds no practical

value since no patient will be sampled more than once and there is risk of test instruments being exposed to future respondents.

### 3.3 Variables

The independent variable was the consultation model which was tested against the routine model in the clinic. The outcome variables were compliance to prescribed medication, satisfaction with the consultation and information or health knowledge acquired from the consultation.

### 3.4 Study Area and Location

The area used for the study was Nairobi. It was chosen mainly because being in the capital city, it is cosmopolitan and the findings will not be biased by any single sociocultural values by any ethnic community. Besides, follow up during the study was possible because many respondents are either employed around or have their businesses within. It was also a convenient study area. The study location was Ngaira Health Centre, one of the 65 health institutions owned by the Nairobi City Council. It is at the cosmopolitan city center. The health Centre is a very busy referral centre for tuberculosis and other chest ailments and thus act as an ideal site to understand what happens in even the other health facilities. It has a chest clinic, Comprehensive Care Clinic (CCC), a Voluntary Counseling and Testing Centre (VCT) and the usual outpatient clinic. It is served by 2 doctors, 7 clinical officers and 15 nurses.

### 3.5 Target Population

This is made up of the four million Nairobians who have the daily potential of attending the health centre for treatment. The study population is the 3426 patients/clients who attend the health centre monthly. This population come for outpatient services for pediatrics and adults, Maternal and Child services, specialized clinics for chest ailments, HIV and skin conditions. Hence it involves all age groups

### 3.6 Sampling procedures

Inclusion criteria were

- Those who consented to the study after consulting a physician.
- Those who were given Medicine prescriptions after physician consultation.
- Those who were seeking medical attention for the first time for the specific medical problem.
- Those who were not staff members of the health centre.

Exclusion Criteria.

- Those who did not consent for the study.
- Those who were not given medicine prescriptions.
- Staff members of the facility and those who were coming for revisits.
- Those who could not be followed up after completion of medication.

### 3.61 Sampling techniques

Probability sampling was used throughout the study. Those patients who consulted the trained physicians were in the experimental group, those who consulted the untrained ones were the routine group.

- The assignment of patients into the experimental and control groups was by interval randomization, while the sample was constituted via simple randomization. A patient could see any physician of his/her choice as usual, but for our sample, we were taking patients from the physicians after every specified interval.
- The selection of physicians into the respective groups was by stratified randomization. Only the experimental or the model group was trained;

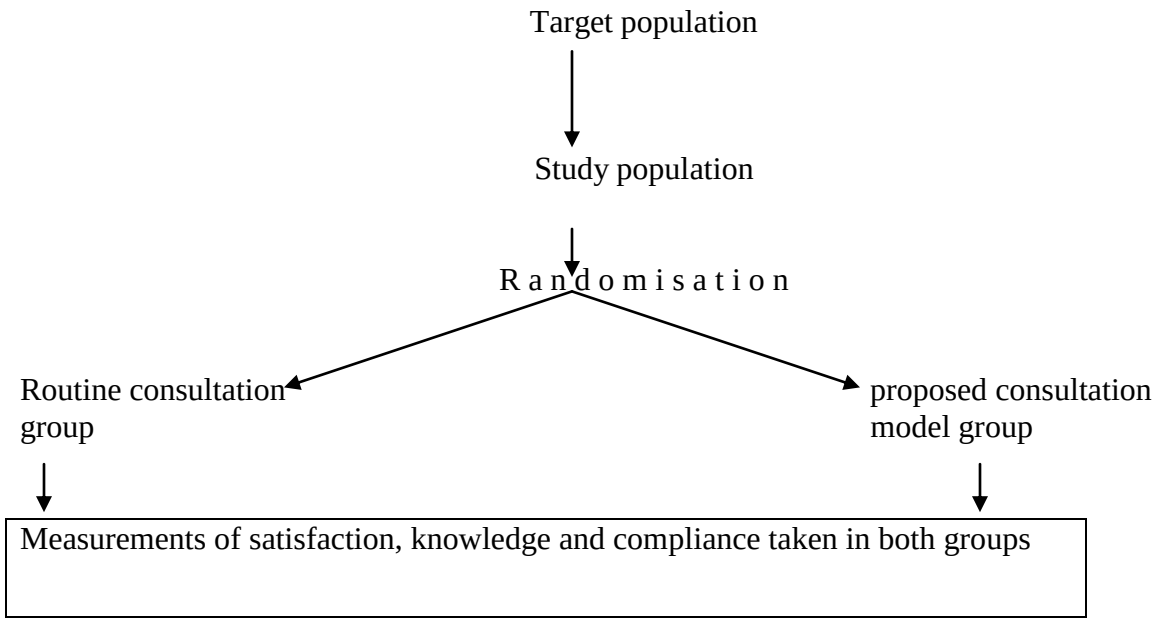


**Figure 3.2: Schematic presentation of the design**

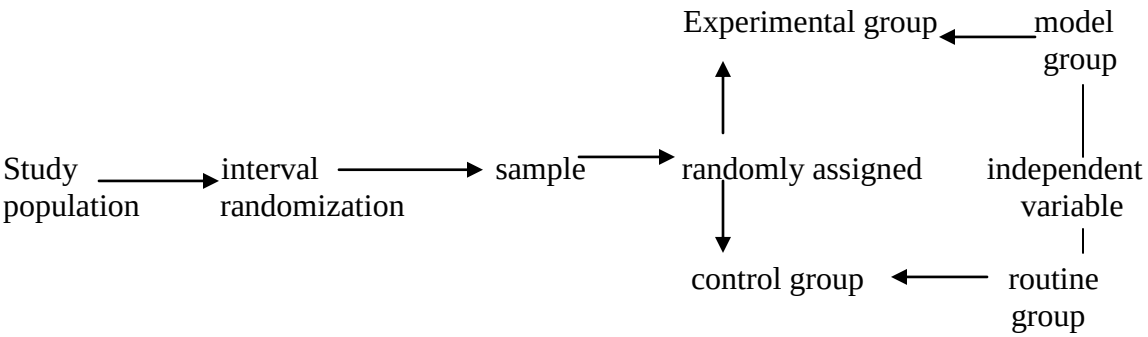


**Figure 4.1: Diagram of the two group sampling design**

### 3.62 Sample size

The sample size was calculated using the following one sided formula (Guangyong, 2004).

$$n=[\underline{Z\alpha\sqrt{(2Pq)}+Z\beta\sqrt{(p^1q^1+p^2q^2)}}]^2$$

$(p^1-p^2)$

Where;

$p_1$ is an estimate in the outcome indicator in the control sample, $q_1 = 1- p_1$

$p_2$ is an estimate of the outcome indicator in the cases sample, $q_2 = 1- p_2$

$$p = \frac{p_1 + p_2}{2} \ , \ q = 1 - p$$

**α is** the chosen level of significance. It sets the likelihood of detecting a treatment effect when no effect exists (error). It is usually chosen to be 5%.

$\beta$ is the power of a study. It is the ability to detect a true difference in outcome between the control arm and the intervention arm. It is usually chosen to be 80%.

**α** = 0.05, Z =1.64, (for a 1-sided study)

$\beta$ = 0.20, Power = 80%, ZB =0.842, (for a 1-sided study)

$p_1 = 0.7$, $q_1 = 0.3$

$p_2 = 0.82$, $q_2 = 0.18$. $p_1 - p_2$ = effect size.

$P$ =(.7 +.82)/2 =0.76

$q$= 0.24

Substituting in the formula

$$n=\frac{[Z\alpha\sqrt{(2Pq)}+Z\beta\sqrt{(p^1q^1+p^2q^2)}]^2}{(p^1-p^2)}$$

***n* = 155**

Therefore each arm of the study shall recruit 155 undergraduate patients attending the clinic. This implies a total sample of 310. But taking care of non response, 10% of the total sample size was added; hence total was 310 + 10% of 310 =340

Sample size used was **340**

### 3.7 Construction of Research Instruments

**E**laborate training of the physicians was done for two weeks. It involved introduction, actual consultation model and lastly practical exposure whereby the research assistants posed as patients to observe congruency with the training. The physicians who were in the routine group were not trained but were involved in, supposedly, a discussion on the study.

The summated 10 point scale Ivy's questionnaire was used to measure satisfaction as it has been validated and proved superior to the simple likert scale based questionnaires (Ivy *et. al*, 2006). The validated Patient Knowledge Questionnaire (Kerrie, 2007) was used to asses patient knowledge. A follow-up face to face interview for those who were not reachable by phone and a telephone interview for those who had phones but could not come back for review were done to asses compliance. This was timed just when the patient was supposed to have taken the last pill.

The measurements were adopted from the universal declaration of human rights and thus the patient Bill of Rights (Lunt, 2007). These give the basis for the patient's rights and the physician's obligations in a consultation. Consequently, the benchmark standards for the questionnaire are derivatives from the W.H.O. clinical standards expected of a physician patient interaction (Donabedian, 2000) and the core competency frameworks for international health

consultants ( WHPA, 2007). The W.H.O. specifications take cognizance of the fact that we are in a resource poor third world country.

The interviews were semi structured but focused and revolved around how the patient was feeling as a way of getting to know how actually the medicines were taken, on which days were the dosing missed. The interview was given a light touch so as not to sensitize them to cheating on the dosing. A number of patients naturally tend to cheat about medication once they know the intention of the researcher.

### 3.8 Pilot study

**T**he pilot study was carried out at Rhodes clinic, adjacent to the main health centre. This pilot centre was chosen because of the demographic similarity with the study site. 17 patients were identified for each arm of the study, and a deliberate attempt was made to take some patients who were dissatisfied with the treatment either by the amount of time taken before seeing the physician or those who made revisits because the previous treatment did not help.

Two sets of questionnaires were administered to each of the 34 patients (10% of the sample size). Each set had a different format of assessing satisfaction. The patients were then followed either by phone interviews on the third day or were given return dates for face to face interview.

The Ivy questionnaire yielded results predictable from the patients, and it was well understood by the patients. It minimized several biases from the patients. Controls group findings were 2.0, 15% and 35% respectively for satisfaction index, patient knowledge and compliance respectively, while experimental results were 3.8, 50% and 62% respectively.

### 3.81 Validity

Sensitivity and specificity tests came out better in the questionnaire that was using the Ivy scale. This validation was done during the pilot study, whereby even the likert scale was tested and found to be inferior. Design and administration of the questionnaire was meant to boost objectivity. Negative questions were to be included in the questionnaire to sensitize those respondents who were out to guess responses to please the researcher or the doctors. Such behavior was common because of fear of the possible repercussions of unpalatable response on the questionnaire. Specificity was also assessed in the same manner. A question could be asked in more than one way so as to enable the best average score. Hence we were able to develop a questionnaire that was superior in its outcome.

The questionnaire had to be translated into Kiswahili and research assistants had to be taken from different ethnic backgrounds. Gender sensitivity was handled by allowing the respondent to choose by self the assistant who was to help in administration of questionnaire.

### 3.82 Reliability

This was guaranteed by adhering to the principle of randomization, the principle of replication and being consistent in the way the two arms were handled. For example, it was the patients who were to answer the questionnaires themselves after understanding the concept. The procedures were uniform and same for all respondents.

It was double blind, only one research assistant who was not helping with the questionnaires knew which patients we had seen, otherwise the physicians and the researchers did not know which patients were taken for the study or were in which arm respectively.

### 3.9 Data collection techniques and Analysis

The study took 35 days, from 7th July to 10th August 2008. Training took two weeks, the rest were for data collection. 24 patients were seen daily with 12 from each arm of the study. The patients were distributed proportionately throughout the day (8am-5pm when about 98% of daily patients are seen) to the physicians in the different arms.

The sampled patient/client participant was sampled for the study by a clerk who was getting them on exit from consultation room. The clerk was the one to apportion them from each arm of the study. The patients were taken to the lead researcher who then counseled them on the study, its advantages and possible outcomes. He also took their telephone contacts and advised all to come back as was calculated from the medicines given. They were also told that an impromptu phone call could be made anytime to asses their progress. Those who were in agreement signed the informed consent document and were given the questionnaire to fill. Those who did not consent were replaced immediately. Those who were having difficulties with filling the questionnaire were assisted by the research assistants.

A follow up telephone interview and or face to face discussion was accomplished after the patient had just taken full dose of the pills on fifth to seventh day. This was to asses compliance. It was only the clerk who knew who was in which arm of the study, the rest of the researchers were not supposed to. The research assistants immediately recorded the data in manual data sheets which were later handed over to the lead researcher for computerization on the same day ready for analysis.

Different statistical tools were used to describe associations and relationships of the different variables. The chi square, the T-test and the Fishers exact t-test were used to test the associations while a Pearson correlation was used for the direction of the association (Kothari, 2005). All the tests were done at 95% confidence interval, 2-tailed. Descriptive statistics like Means, variances, standard deviations, ranges, confidence intervals and odds ratio were calculated. Data was presented using pie charts, tables, figures and graphs. Statistical Package for Social sciences (SPSS) version 9 was used in addition to manual methods.

### 3.10 Logistical and Ethical considerations

It was notable that many health institutions were not willing to grant permission for the study, citing the fact that it was a very sensitive study that could expose their weakness. Taking some assistants from the study institution helped a lot with logistical issues. Approval was attained from the Ministry of Higher Education, Science and Technology, from the Medical Officer of Health of the N.C.C. and from the D.M.O.H, Nairobi North and the Medical Officer in-charge of the Ngaira Health Centre. Ethical Approval was from the Pumwani Maternity Hospital ethical committee.

Informed consent and confidentiality were the cornerstones of the study. Respect for human dignity and rights were adhered to. No invasive procedures were undertaken.

# CHAPTER IV

# RESULTS

## 4.1 General Demographic Data

This section describes the comparability of the demographic data in the two arms, hence reliability and validity of the results.

### 4.1.1 Age Distribution

In the study, a total of 338 patients/clients participated; that is 171 for the routine group (control group) and 167 for the Model (Experimental) group. The routine arm of the study had 4 extra participants since some participants who were sampled insisted on being seen with the whole family as they came for treatment at the facility. The respondents were from 3 months old to 86

years of age. The very young, especially those below 12 yrs old were represented by their parents.

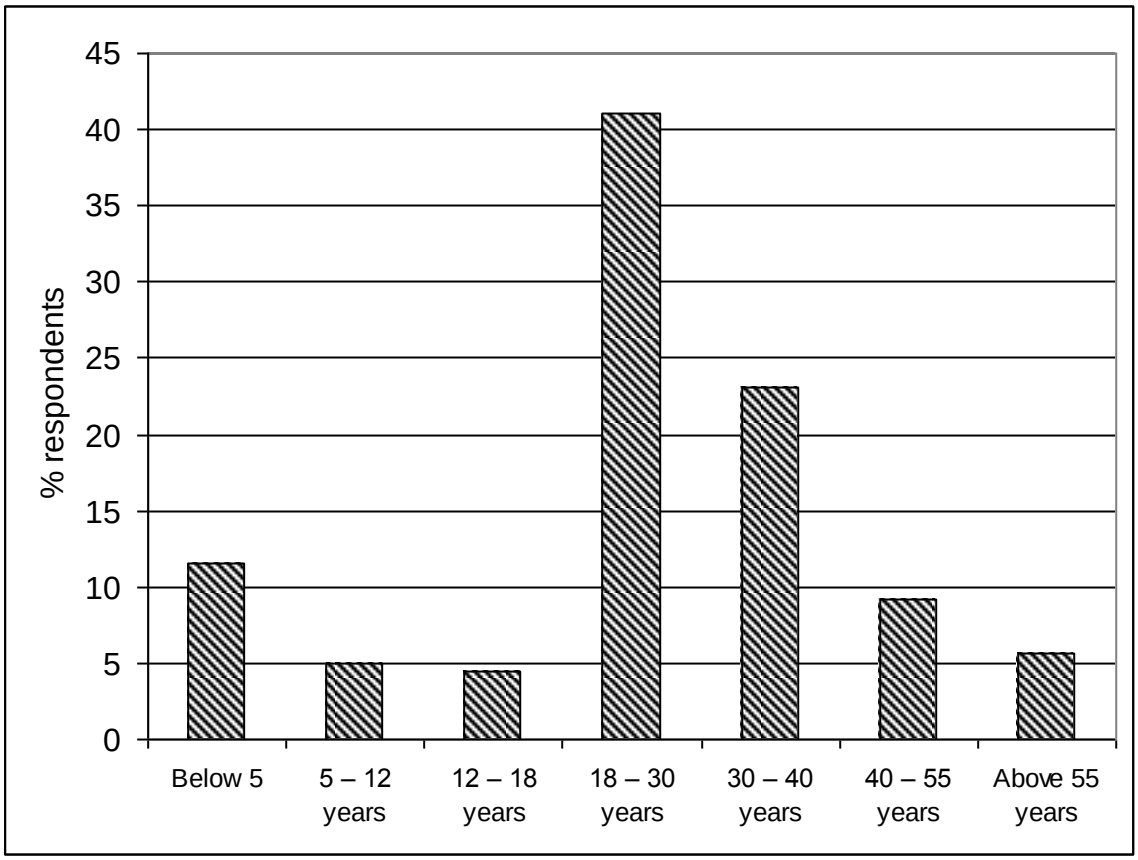

**Figure 4.1:** Distribution of age strata of study participants by percentage (n =338)

Many of the respondents were in the age bracket of 18-30 years, and the distribution depicted a normal curve. The exception to this is the slight dip between 5years and 18 years since it was expected that this is the age group of schooling, hence most were in school. The mean age was 27.4 years, while the median was 27.00 years. The standard error for the mean age distribution was 0.818.

A comparison of the ages was also done for the two arms of the study to establish sampling consistency as seen in the table below.

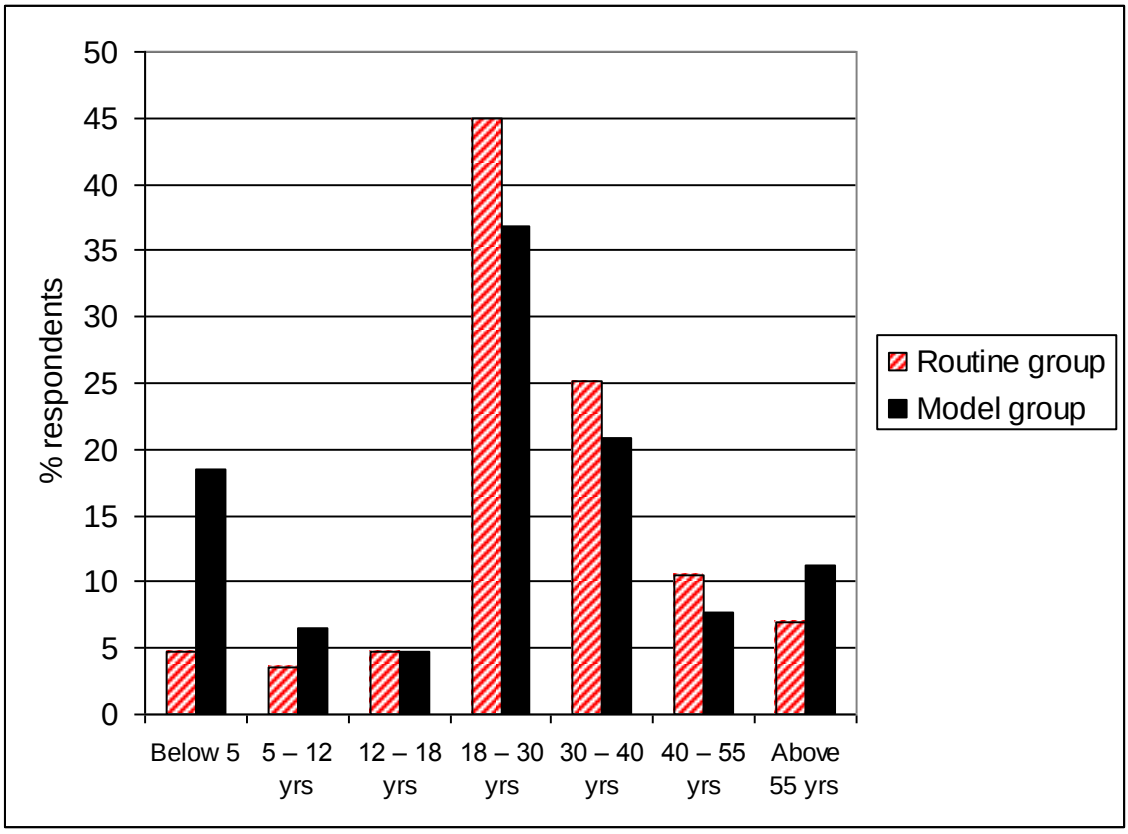


**Figure 4.2**; Respondents age distribution in the two sampling groups (n =338).

The age distribution was noted **not** to be significantly different in both arms of the study ($\chi^2$ = 35.00, df = 6, P = 0.243), confirming that sampling technique used was good.

### 4.1.2 Occupation

Likewise, in occupation most of the respondents were in business because the health facility is located in the Central Business District (CBD). The other majority were employed. Farmers were very few.

| **Occupation** | **Frequency n = 338** | **Percentages (100%)** |
|---|---|---|
| Business | 110 | 32.5 |
| Employed | 90 | 26.6 |
| None | 87 | 25.7 |
| Students | 38 | 11.2 |
| Farmer | 6 | 1.8 |
| None committal | 7 | 2.1 |

**Table 4.1**; Occupation of the respondents sampled (n =338).

### 4.1.3 Education level of the respondents

The study realized that the respondents were predominantly those who had secondary and primary level education. Those with university education were minimal just as those with tertiary college education.

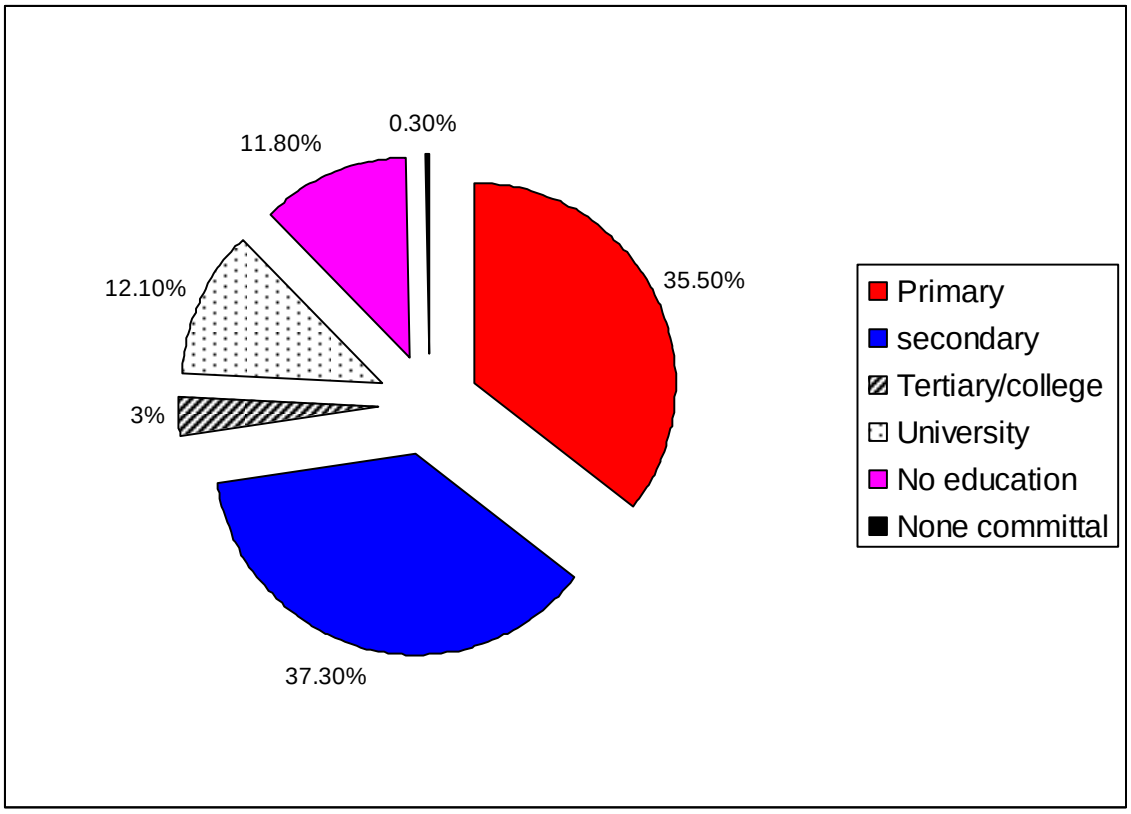


**Figure 4.3;** Education level of the respondents in percentage (n =338).

This level of education implied that the questionnaire had to be administered also in Kiswahili. This decision was made after the pilot study. Comparing the two arms of the study, it was noted that the education levels were not significantly different ($\chi 2 = 0.96$, df 3, $p < 0.05$).

4.2 Patient/client satisfaction

Satisfaction measurements were done for all the 338 respondents. Varied findings were found in the two groups.

| Satisfaction factor | Number of respondents | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Not satisfied | | Fairly satisfied | | satisfied | | Highly satisfied | | Very highly satisfied | |
| | C | M | C | M | C | M | C | M | C | M |
| Physician has my interest at heart | 37 | 2 | 61 | 34 | 25 | 93 | 31 | 35 | 17 | 3 |
| The Physician knows me well | 118 | 31 | 29 | 60 | 6 | 62 | 11 | 13 | 7 | 1 |
| Physicians here understand plight of patients | 73 | 11 | 55 | 57 | 16 | 64 | 14 | 32 | 13 | 3 |
| Range of physician services here are satisfactory | 63 | 7 | 65 | 43 | 21 | 90 | 10 | 25 | 10 | 2 |
| Attire` and grooming appropriate | 30 | 4 | 17 | 25 | 27 | 38 | 68 | 68 | 27 | 31 |
| Physician told me everything about my treatment | 88 | 18 | 40 | 56 | 9 | 60 | 19 | 27 | 15 | 6 |
| Some things about the consultation need improvement | 88 | 22 | 37 | 34 | 12 | 70 | 12 | 33 | 20 | 8 |
| Physician examined me thoroughly | 79 | 17 | 56 | 50 | 12 | 54 | 12 | 40 | 11 | 6 |
| Physician was interested in me as a person not just my illness | 75 | 17 | 50 | 30 | 17 | 68 | 18 | 38 | 10 | 14 |
| I understand my illness better now | 79 | 14 | 49 | 31 | 12 | 57 | 10 | 50 | 18 | 15 |
| I felt the physician knew my mind | 87 | 18 | 50 | 42 | 10 | 49 | 10 | 40 | 13 | 18 |
| Consultation time was enough and adequate | 76 | 13 | 54 | 33 | 16 | 58 | 11 | 39 | 9 | 24 |
| I would find it difficult to tell this physician about some private things | 66 | 16 | 45 | 42 | 23 | 56 | 20 | 38 | 15 | 15 |
| He/ She was friendly, listening and respectful | 47 | 3 | 44 | 15 | 20 | 48 | 43 | 61 | 17 | 23 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| He explained well what he was doing | 90 | 20 | 42 | 45 | 13 | 58 | 14 | 27 | 12 | 12 |
| Consent before physical examination was sought | 111 | 41 | 31 | 28 | 7 | 54 | 8 | 36 | 14 | 8 |
| Findings were well explained | 84 | 19 | 50 | 35 | 11 | 66 | 11 | 43 | 13 | 4 |
| I felt positive consulting him in future | 55 | 2 | 48 | 22 | 29 | 55 | 17 | 90 | 24 | 8 |
| Am satisfied with the visit to the physician | 50 | 3 | 48 | 4 | 18 | 52 | 26 | 68 | 29 | 40 |
| Do you understand the medicines given by any name or identification? | 134 | 75 | - | - | - | - | - | - | 37 | 92 |
| Purpose of medications were explained well | 110 | 19 | 34 | 58 | 12 | 62 | 9 | 23 | 6 | 5 |
| Reminder for completion done | 125 | 29 | 19 | 46 | 7 | 44 | 7 | 40 | 12 | 8 |
| I was told when to expect to feel better | 134 | 25 | 19 | 25 | 2 | 63 | 6 | 45 | 10 | 9 |
| I had to ask when to expect improvement and when to come back | 133 | 50 | 21 | 50 | 9 | 51 | 1 | 25 | 7 | 3 |
| I felt confident taking the prescriptions | 60 | 9 | 28 | 9 | 18 | 27 | 34 | 81 | 31 | 47 |

**Table 4.2: Level of satisfaction amongst respondents in the Control (C) and the Model (M) groups (n = 338)** *NB; The blank spaces indicate no answer was required.*

### 4.2.1 Satisfaction in Both the Control and Model arms.

For the analysis of the data as per table 3, the Ivy Scale 1-2 corresponded to “not satisfied”, 3-4 to “fairly satisfied”, 5-6 “satisfied”, 7-8 “highly satisfied” and 9-10 “very highly satisfied. The control group was not satisfied in most areas, for example 111 respondents were not satisfied with the physicians who could not seek consent for examination in the control group, while only 41 were not satisfied in the model group. This was more in closing remarks by the physician whereby they could not tell the patients when to expect to feel better and could not remind the patients to complete dosages of the medication. However, a relatively high percentage was satisfied with visiting the physician. This was in contrast with the model group. This group had improvements in most scores, for instance, they were highly satisfied in understanding medicines given to them, and felt more confident in taking the medicines more than the control group. Still, relatively a large number did not know the physician who treated them and were not reminded to complete medication.

| variable | % not satisfied (1-2) | % fairly satisfied (3-4) | % satisfied (5-6) | % highly satisfied (7-8) | %very highly satisfied (9-10) |
|---|---|---|---|---|---|
| Control | $49.07^{a}\pm3.5$ | $24.19^{a}\pm1.65$ | $8.53^{a}\pm0.81$ | $10.25^{a}\pm1.72$ | $9.31^{a}\pm0.94$ |
| Model | $11.62^{b}\pm1.96$ | $21.85^{a}\pm1.87$ | $34.95^{b}\pm1.71$ | $24.96^{b}\pm2.08$ | $9.95^{a}\pm2.3$ |

**Table 4.3**: Summary of Satisfaction Scores with the Corresponding Significance Intervals

NB: means on the same column denoted by similar letters; ($^{a}$) are not significantly different $P\leq 0.05$.

Computing all the satisfaction scores for the 171 respondents in the control group, and using the scale 1-10, the mean satisfaction score for the health facility, that is for the control group was

35% or an index of **3.5 (fairly satisfied)**. The score for the model group, 167 respondents was 53.5% **or 5.35 (satisfied)**.

### 4.2.2 Satisfaction and the Demographic factors

There was no association noted in any of the satisfaction scores with gender and occupation in the control group. But education had an influence on the physicians explanation about the findings after the consultation ($\chi^2 = 72.18$, df = 36, $P < 0.05$) in the same group. The direction of this association was confirmed by the correlation ($r = 0.202$, df = 1, $P < 0.05$).

| Education level | Percentage of Respondents satisfaction level | | | | |
|---|---|---|---|---|---|
| | Not satisfied | Fairly satisfied | Satisfied | Highly satisfied | Very highly |
| No education | 44.4 | 22.2 | 0 | 22.2 | 11.1 |
| Primary | 61.1 | 29.6 | 5.6 | 1.9 | 1.9 |
| Secondary | 44.7 | 31.6 | 9.2 | 9.2 | 5.3 |
| Post secondary(college) | 56.5 | 17.4 | 0 | 4.3 | 21.7 |
| University | 12.5 | 50 | 12.5 | 0 | 25 |

**Table 4.4**: Comparison between Patient Education Level and Satisfaction in the Control Group (n=171)

Many peculiar differences were noted using the model. There was a significant association of the respondent's satisfaction scores in relation to their sexes. The females showed profound dissatisfaction with the understanding of the medicines (Fishers exact $\chi^2 = 0.01$, df = 1, $P < 0.05$), with explanation given by the doctor during the consultation ($\chi^2 = 16.926$, df = 9, $P < 0.05$) and with understanding the plight of patients at the facility ($\chi^2 = 19.48$, df = 8, $P < 0.05$). However females showed positive and significant satisfaction levels on the grooming and the attire of the physician and on those who look at them as persons, not just on their illness ($\chi^2 = 14.827$, df 9 $P < 0.05$ and $\chi^2 = 18.954$, df 10, $P< 0.05$ respectively).

Education level of the patients/clients also had association with the more satisfaction factors than in the control group

| Satisfaction parameter | $\chi^2$ value | Degree of freedom |
|---|---|---|
| Physician understanding of the plight of the patient/client | 82.268 | 32 |
| Range of physician services | 71.437 | 32 |
| Physician told the patient everything about the treatment | 71.038 | 36 |
| Physician examined the patient thoroughly | 63.755 | 36 |
| Physician explained well the consultation process | 72.992 | 36 |
| Findings were well explained | 109.358 | 36 |
| Physician explained the purpose of the medicine | 53.558 | 36 |
| Physician explained when the patient expect to feel better | 61.956 | 36 |

**Table 4.5**: Significance levels for the satisfaction factors in the model group (Probability tested at 95% CI)

### 4.2.3 Reasons for the observed satisfaction levels

It was noted that when the satisfaction score was low, the respondents were basically complaining about four areas of concern which they could now generalize to the quality of their relationship with the physician.

Issues to do with lack and quality of medicines featured prominently in dissatisfaction. The patients were able to dismiss consultation quality after it transpired that they were not going to be

given medicines. The same applies to lack of laboratory facilities and radiology services where patients were referred to get these from the nearby private facilities.

| Reasons for poor respondents satisfaction | Frequency percentage (%) |
|---|---|
| Medicines(quality and lack) | 46.65 (n = 122) |
| Range of services(x ray, laboratory) | 18.4 (n = 48) |
| Overall waiting time | 28.95 (n =76) |
| Others (rude inadequate staff, lack of privacy and courtesy, poor toilet facilities etc) | 6 (n =16) |

**Table 4.6;** Basis for Poor Satisfaction based on participants responses (n = 262)

However the patients were satisfied with the fact that they were able to see the physician, who offered advice, examined them, did a prescription and reassured them that they were to feel better. Most were able to get some of the services like laboratory tests, x rays and medicines prescribed.

### 4.3 Patient Knowledge on their ailments after visiting the Physician

In the control group, 88.9% (n=152) of the respondents could not even know the names of the physician who attended to them. Only 49.7% (n=85) could tell of what they were told to be suffering from, the rest could only say they have a sickness. These findings were different from the model group, whereby they were 28.1% (n=47) and 6.6% (n=11) respectively. Similar findings were found between the two groups.

| Knowledge | Yes(correct) responders | No (wrong) responders |
|---|---|---|

| area | Control | Model | Control | Model |
|---|---|---|---|---|
| Physician's name | 11.1% (n = 19) | 71.9% (n=120) | 88.9%(n = 152) | 28.1%(n=47) |
| Disease identity | 50.3% (n =85) | 93.4%(n= 156) | 49.7%(n = 84) | 6.6%(n=11) |
| Cause of disease | 33.9% (n = 58) | 73.7%(n= 123) | 66.1%(n = 113) | 26.3%(n=44) |
| Transmission of disease | 17% (n = 29) | 56.3%(n= 94) | 83.0%(n = 142) | 43.1%(n=72) |
| Prevention of disease | 26.0 %(n =44) | 71.9%(n=120) | 74.0%(n = 125) | 28.1%(n=47) |
| Complications of disease | 27.9 %(n = 46) | 61.7%(n=103) | 72.1%(n = 119) | 38.3%(n=64) |
| Identity of medicine | 53.3%(n = 32) | 52.7%(n=88) | 46.7%(n = 28) | 47.3%(n=79) |
| Purpose of medicine | 31.9%(n = 15) | 43.7%(n=73) | 68.1%(n = 32) | 56.3%(n=94) |
| Knowledge of dosing | 25%(n = 38) | 52.7%(n=88) | 75.0% (n = 114) | 47.3%(n=79) |
| Knowledge of side effects | 4.2%(n = 7) | 20.4%()n=34 | 95.8%(n = 159) | 79.6%(n=133) |
| Management of side effects | 0% | 31.1%(n=52) | 100% | 67.7%(n=113) |

**Table 4.7:** Responses frequencies on each Knowledge area Among the Respondents in the two Groups (n= 338).

Comparing the responses for the two groups, a significant difference was noted amongst those whose responses were correct and wrong.

| Knowledge score | Test $\chi^2$ value | Degrees of freedom | P value | Critical $\chi^2$ value |
|---|---|---|---|---|
| Yes | 32.49 | 4 | < 0.005 | 14.86 |
| No | 58.728 | 4 | < 0.005 | 14.86 |

**Table 4.8:** Comparison of the statistical significance of the responses in the control and model (Experimental) groups.

By calculating all the correct responses for each of the 171 respondents in the control group in relation to table 8, the overall knowledge index for the facility was noted at **25.5%.** Only 25.5% of the respondents knew about their ailments after physician consultation. There was however an improvement when the model was used. The new index was found to be **57.23%.** This is a significant difference ($\chi^2$=12.174, df 1, P< 0.05).

### 4.3.1 Knowledge on ailments and the Education levels

The level of education had a significant association with the Patients understanding of the side effects of the medication (( $\chi^2$ = 9.951, df 4, P < 0.05) and with the number of patients who had knowledge of their disease and its management (t = 4.779, df = 10, P < 0.05) in the control group. However the physicians ignored discussing mentioning side effects of drugs and nature of disease to many patients.

In the model group, those of secondary education compared to those with no education had a significant difference in their knowledge (t= 2.492, df =10, P< 0.05).

## 4.4 Patient Compliance with the prescribed Medication

Compliance measurement was done in 88.75% of the respondents. This was done last as a follow up via interviews**.**

### 4.4.1 Compliance in the Control and Model groups

Compliance to prescribed medicines was measured through semi structured Telephone interviews in 59.5% of the respondents, and in 29.25%, it was through face to face interviews for those who did not have telephone contacts or those who wished to come back. Lastly, 11.25% did not respond.

In the control group, it was noted that **50.3% (n= 86)** of the respondents were compliant, 36.8% (n=63) were non compliant to medication while 12.9% (n=22) did not respond to the interview.

It was noted that **68.9%** (n= 115) of the respondents in the model group were compliant, 21.6 % (n= 36) were non compliant to medication while 9.6% (n=16) did not respond to the interview. This was a significant improvement compared to control group ( $\chi^2$= 2.90, df 1, P< 0.10).

### 4.4.2 Reasons for non compliance

For the non compliant groups, several reasons were given. It was noted that the reasons differ in frequencies depending on the group.

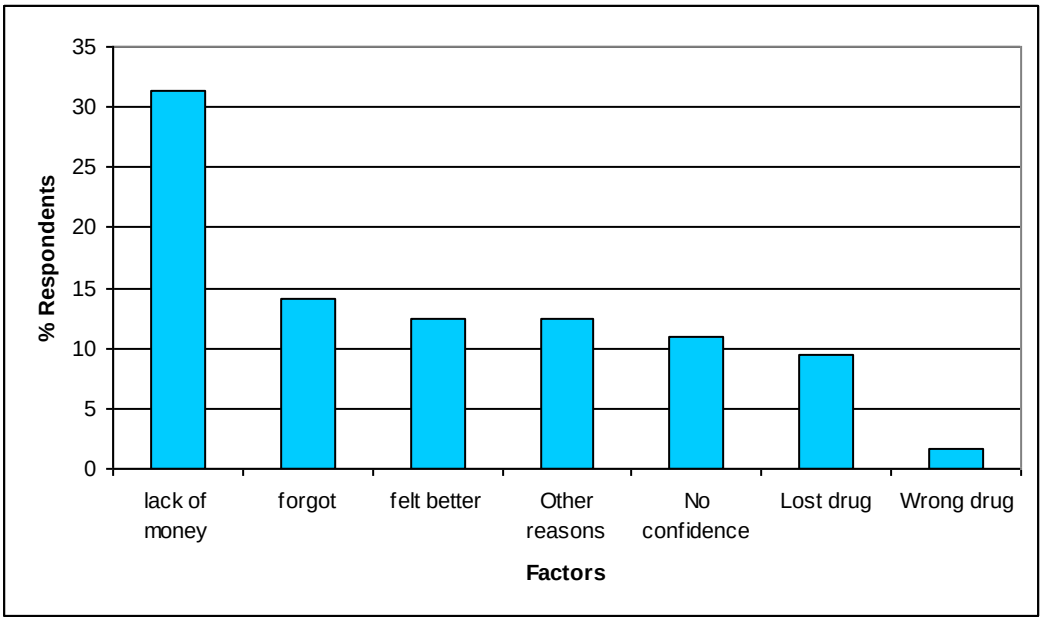


**Figure 4.3:** Non compliance factors in the control group (n =96).

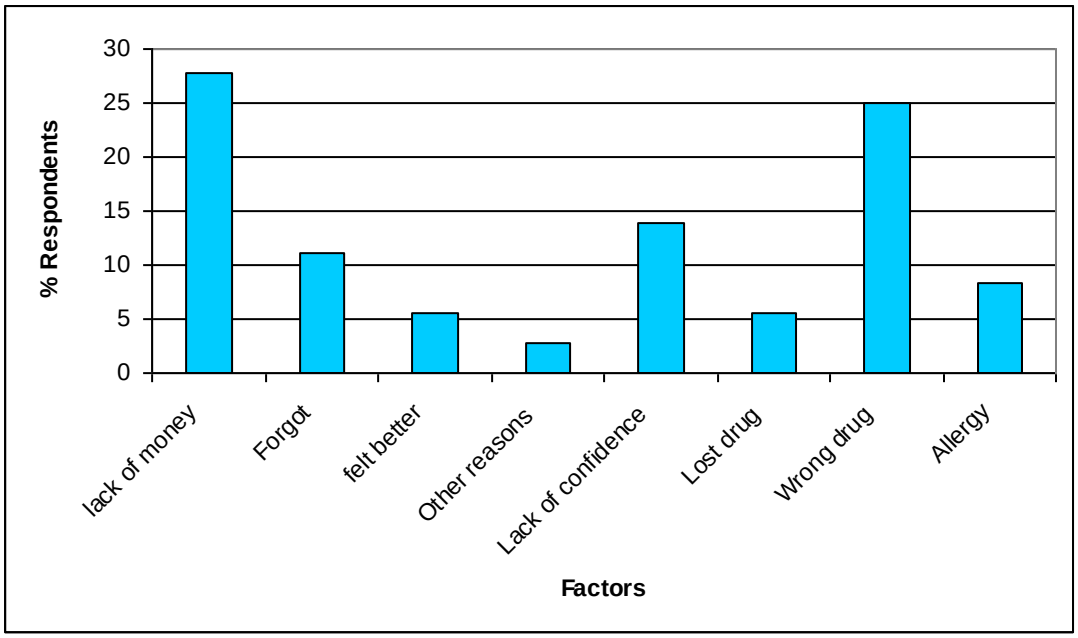


**Figure 4.4**: Non compliance factors in the model group (n =57).

Eighty two percent of the patients/clients who responded for compliance studies were given medication from the facility and were also given a prescription for some medication to be bought. Only 18% got all the medicines from the facility pharmacy.

This is why most of those who did not buy the medicines gave reasons of lack of money, and thus there was insignificant difference in those who failed to comply because of lack of money ($\chi^2$=0.207, df 1, P< 0.05). Other reasons here include those who were trying to see if the drugs given could work without buying the ones prescribed, those who were confused about the dosing and those who gave out some dosages to sick friends and relatives. These reasons were difficult to get because many were unwilling to reveal them.

Those with no confidence were concerned about the effectiveness of the given medicines so were not confident taking them. Some were not sure with the Physicians explanation. Wrong medicines were acquired either through unregistered pharmacists who were changing the patients' prescription, or the patients buying cheaper versions because of lack of money. Some patients simply confused the medicines with those of their relatives or friends.

The Model group had a significant number of patients failing to comply because of allergy. This was because of improved understanding of side effects. This group also had fewer number of patients who forgot to take medications and those who did not comply because of feeling better. The number that used wrong medicines (those that were different from the prescribed ones) was high here since the patients knew what they were supposed to take, but because of lack of money or unscrupulous pharmacist, they were given different medicines.

**4.5 Establishing usefulness of the consultation Model.**

The model made significant improvement on the three variables studied when the control and experimental arms were compared.

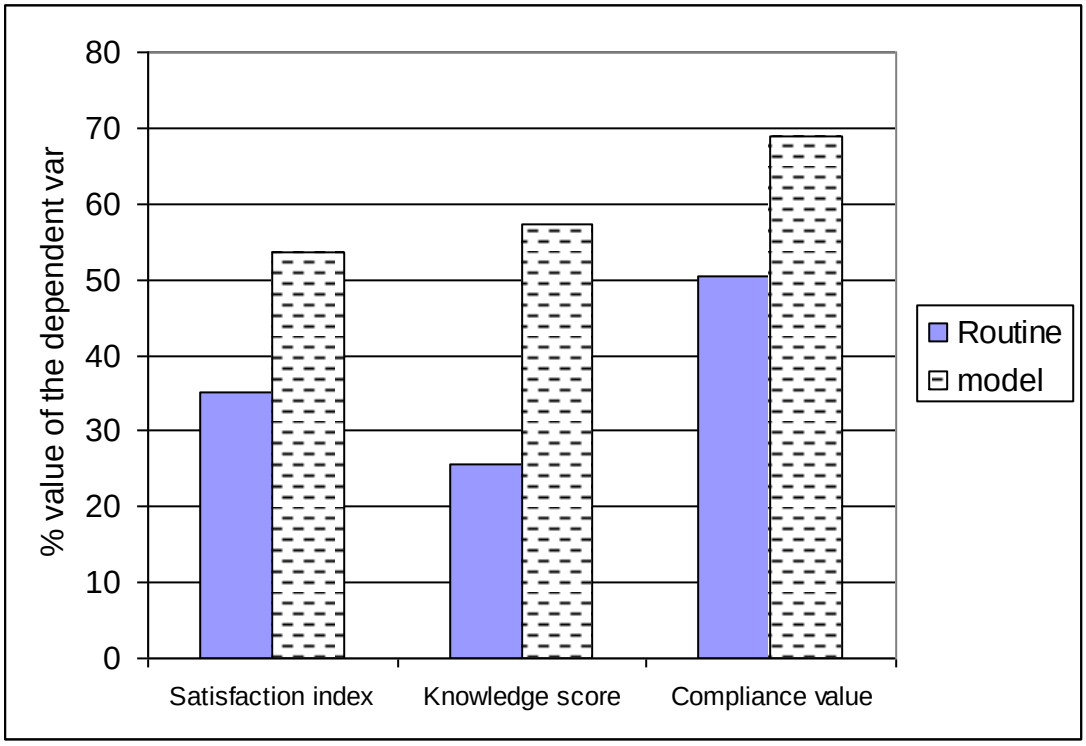


**Figure 4.5:** Comparison of the two groups.

| variable | Odds Ratio | 95% confidence interval | Significance at p< 0.05. |
|---|---|---|---|
| **Satisfaction (n 338)** | 2.09 | 1.18-3.69 | $\chi 2$ =216. df 4 |
| **Knowledge (n =338)** | 3.9 | 2.14-7.1 | $\chi 2$ =12.174. df 1 |
| **Compliance. (n =262)** | 2.17 | 1.22-3.88 | $\chi 2$ = 7.18. df 1 |

**Table 4.9:** Statistical comparison of the Model against the routine consultation styles.

All the calculated odds value for the dependent variables are more than one, meaning significant association between consultation style and the dependent variables. In effect, the proposed

consultation model had a significant impact on the outcome of the consultation as compared to the routine model as shown in table 10.

# CHAPTER 5

# DISCUSSION

## 5.1 The findings

This Chapter discusses the findings of the study and gives a clear understanding of the reasons for the findings and how the findings accomplishes the objectives according to the purpose of the study and as per the literature review.

On the general demographic data, the study established that the age distribution of the respondents was normal. This was not different from the distribution of the clients attending the health centre. Significantly, a normal distribution indicates that the sampling is similar to the general population; hence generalizability of the results is possible on this aspect. This confirms the superior sampling techniques which were used.

The age distribution was also compared for the control and the experimental arms of the study. They were noted to be similar and hence lending credence to the reliability and validity of the study.

In terms of the occupation, it was notable that most were business people and the employed, both taking 58.5% of the total. This is not different from the National Nairobi average of 56% (Central Bureau of Statistics [C.B.S], 2003). This was expected because the health facility is situated at the city centre, not within a residential estate. Most respondents were either in business or were employed. The unemployed number reflects level of poverty in our country.

Besides, analysis of the level of education was predictable, considering the education standards in the country, for example, in the study, 11.8% had no education while the national figure for this is 9.5% (C.B.S, 2003). It was not surprising that primary and secondary level education was more, while University or tertiary levels were noted to be minimal. These informed the basis of administering the questionnaire in Kiswahili. The demographic findings on age, occupation and education were again very similar to the general population.

Patient or client satisfaction was measured using the Ivy 10 point scale. It gave best results of satisfaction. It was noted to be superior to the likert scale which commonly antagonized the patient's psychology. It was possible that a patient could give a physician a score of 2 meaning poor satisfaction, but the same patient was unable to state poor satisfaction in words since this connotes disrespect to the physician.

The findings of satisfaction were that the highly educated stood a better chance of understanding the discussions with the physician. This finding is in keeping with several studies that have indicated that education improves health literacy and is a major factor in success of health promotional activities (Schillinger, 2002).

Low satisfaction index of 3.5 was found at the facility. This health facility is a typical public health facility with all the characteristic manifestations of poor quality service. This index has been reported in other public health institutions in Kenya and is low compared with an index of 6.7 which was found in private hospitals in Nairobi (Infotrak, 2007). It supports the reasons why

health personnel need to sign performance contract in the new civil service dispensation in Kenya. It has been noted that service delivery is very poor in most public hospitals. Staffing constraints and lack of resources are excuses because patients are not getting satisfied not because of these two, but because of poor relationship, lack of empathy and partnership and prolonged waiting times (Owino, 1997). For example, in this institution, waiting time was more because of time wastage for tea and lunch by staff. Such a poor satisfaction index will form the basis for the citizen service delivery charter to be updated yearly.

It is pertinent to point out that satisfaction factors are interdependent from the study revelations. This implies that one factor will disappoint a patient and this will lead to poor satisfaction level of even the other better factors. In this study, the worst satisfaction performers were issues to do with drugs, prolonged waiting time before seeing the Doctor and the range of services at the facility. A sick patient who has been delayed in the queue with diarrhea will not feel satisfied even if the consultation was good, or a patient who has no money but has been told to buy medicines and is sick cannot be satisfied even if the physician was perfect in the consultation.

Hence in the assessment of satisfaction, it was difficult to place significance to a particular single factor because of this interdependence and interrelationships. But taking the average performance is the single most important indicator, lest we loose the analytical usefulness of the concept of satisfaction. This study confirmed this theoretical references and determinants of satisfaction as interdependent and interrelated (Esperediao & Trad, 2006). These are thus manifestations of the fact that satisfaction and hence patient complaints are indicators of quality of service delivery (Vinen, 2002). In the study, patients who seemingly were well handled, but

were told to go and do laboratory tests outside privately were very disappointed and ended up indicating low scores generally because they could not be treated without such tests.

However, the patients or clients who were satisfied with the services were able to appreciate consulting a physician who reassured them on their health, gave a prescription for medication and sent them for tests. Most were happy that initial care made them feel better in terms of disease symptoms.

The developed world has succeeded in offering quality health care because of early recognition of client satisfaction as an important factor in service delivery. This is contrary to the third world where this realization has not keenly taken root (Leroy and Prajapati, 2007).

Patient knowledge on the presented health problem at the facility was noted to be low at 25.5%. It was noted that there was no significant difference in all but one aspect of knowledge area tested amongst the different levels of education in the control group. This was a result of poor physician patient consultation. It does not matter the level of client education, if the details of ones illness is not discussed, all patients would seem to have similar knowledge in respect of the consultation even if education levels are different.

On the same line of argument, the low knowledge score of 25.5% at the facility is also an indicator of the generally high proportion of the respondents with low or no education. This category of respondents did not see the importance of enquiring more about their health or were unable to comprehend the terms used by the physician.

The low knowledge score is in tandem with the low satisfaction levels which were found. It is also in keeping with the findings in Nairobi that lack of knowledge is a factor leading to more ca-cervix deaths, and that only 2% of women in Nairobi have regular pap smear screening as compared to 85% in the United States (Gichangi et al, 2003).

This has been corroborated elsewhere, for example in Uganda, patient knowledge after a consultation is no more than 23% (Twebaze, 2007). This fuels poverty and poor health, as Medicare becomes difficult with poor health literacy . The low health literacy is a factor well documented in the spread of communicable diseases like Tuberculosis, Malaria and HIV in Kenya and other third world countries (DrLmelde, 2004). This statistic confirms the scenario in our health system, and calls for a new approach to managing healthcare.

Judicious utilization of health services is heavily dependent on health literacy and satisfaction. And aspects like early detection of cancer and control of communicable diseases cannot be realized in our set up partly because of this (Deolalikar, 1997).

Low health literacy is an impediment in the attainment of MDGs and is increasing cost of Medicare. Control of communicable diseases will be a mirage until we improve health literacy.

When it came to compliance, the level of 50.3% was noted. This is in keeping with literature putting it at 50% to 66% (Molino *et. al*, 2004). This shows that only half of patients actually take the prescribed medication in full or as prescribed. This is a fact which has been blamed on

resistance of pathogens to commonly used medications and increased cost of managing communicable diseases and HIV-AIDS (Revanthi and Musoki, 2000).

More disturbing is the fact that the reasons given for non-compliance are either mainly due to poverty, ignorance or poor consultation process. Majority were non compliant because they did not have money to buy medicines prescribed. This is in contradiction of the government policy of supplying freely the essential drugs needed in our health institutions. Quite a number were just ignorant, either stopping medication when they feel better or simply buying the wrong drug.

Mitigating measures in dealing with communicable diseases must include outlining procurement procedures on medicines, improving health literacy and health provider's relationships with the patient. Policy issues affecting issuance of basic medicines in our health institutions and operations of private pharmacies are critical elements that should be streamlined.

Compliance in the respect of the study was a factor determined to a great extent by the patient behavior. The physician also contributed to this and hence adherence is the right terminology since it connotes involvement of both. It is a superior term to compliance which connotes that it is only the patient who has a duty to take the instructions. For example, 10.9% of patients were non-compliant because the physician did not explain well the need to comply.

In trying to establish the usefulness of the proposed model, the level of the three variables using the model was compared with the control group. The satisfaction level significantly improved to 5.35 (satisfied) from 3.5 (not satisfied). This is still less than the level of 6.7 in private institutions in Nairobi. This was expected because as already mentioned; satisfaction is

dependent on several other factors besides consultation. So it was difficult to achieve a very high index.

However some interesting characteristics emerged with improved satisfaction in the model group. Females gave good satisfaction scores for grooming and attire of the physicians and for those who looked at them as persons, not as medical individuals. This is to say they appreciated those who were well groomed and those who appreciated their hairstyles, shoes and smartness than the male counterparts. A similar scenario was seen with the level of education as the more educated looked more knowledgeable.

Both the above lend credibility to the fact that as the consultation process becomes more humane, understanding and less threatening as was in the model group, the client behaves as in any other normal natural environment in the right social context. The client's abilities and egos are not suppressed by the physician: therefore ladies start admiring smartness, the educated start expressing their knowledge. This is a fact that has been validated severally that the behavior of a patient is very much dependent on the interaction with the health care provider (Vinen, 2002). Patients will clearly show their appreciation or disappointments if they are given a less threatening environment. They even comply well with medication and complain less.

Again in comparing the patient knowledge in the two arms, there was a significant improvement from 25.5% to 57.23%. Such a simple measure changed patient knowledge considerably despite the respondents being generally of low education. This is an important aspect because it is known that low illiteracy translate into more morbidity and increased healthcare costs

(Schillinger, 2002). Knowledge has a long lasting transgeneration impact in our society. Health education and promotional activities become difficult with low health literacy.

It is difficult to improve Compliance without general improvement in quality of healthcare because the reasons for non compliance are mostly beyond the control of the patient. Non-compliance because of lack of money to buy medicines and wrong dispensed medicines are examples which indicate need to improve procurement of medicines, policy changes and improved professionalism. Non-compliance because of reasons attributable to the patient significantly improved, i.e. those who could not comply because of feeling better decreased from 12.5% to 5.6%, an indication that the model played a major role in this and patient education and satisfaction.

Measurement of compliance in this set up of poverty and relatively high ignorance proved difficult, hence two methods had to be used: face to face interview and telephone interview. Quite a number could not make it for face to face interview because of various reasons including lack of fare. Fear of victimization for non compliance might have played a role in those who could not come back. Hence non response to compliance was 12.9% in the routine group and 9.6% in the model group. Meaning non-compliance rate can only go higher than the found figures.

Therefore through the innovated model, all the three dependent variables had a significant improvement. At present, the administrative, staff and resource constitution of the facility leaves a lot of room for improvement for ideal service delivery. The model was able to make an impact

without any additional use of extra resources but for just insistence on good communication skills, commitment and respect for the patient. It enabled the physicians to assemble the right requirements to deal with the negative impact of long waiting times, inadequate resources, and limitless bureaucratic nature of services. All these have given negative image to the public health facilities.

## 5.2 Implications of the findings.

The findings have far reaching implications to both the institutional service delivery and the impact to the community. These are closely linked to policy and management issues.

### 5.2.1 Consultation Model

The model is an indicator to policy makers on what innovative thinking can do to improve services and to solve common problems. Researchers and health practitioners are thus encouraged to replicate modeling in service delivery.

### 5.2.2 Service Delivery

The best assessor of quality service delivery is the customer or the patient. Regular assessment of service quality using satisfaction survey as one of the benchmarks is recommended since it is the surest way of planning improvement. Also it is notable that quality service delivery will ensure that all the departments concerned work as a system. The departments like pharmacy, laboratory, clinical, administrative, nursing and procurement were noted to be interrelated and

interdependent. In terms of the indicators measured, a lot of improvement is needed in quality of service to patients and clients.

### 5.2.3 Resource management

The full potential of the health facility could not be realized because of poor resource utilization. Proper and importantly timely resource management is critical. Prompt repair of radiology machine, timely acquisition of drugs and laboratory chemicals constitute aspects of proper resource utilization that translate into improved functional capacity.

### 5.2.4 Policy implications

Policy changes are required to inculcate the culture of being responsible citizens. Changes in the areas of training needs to include such innovations that emphasize customer demands are needed. The Citizens Service Delivery charter is a step in this direction by the Government, but professional bodies like KMPDB, Kenya Medical Associations need to follow suit with their members.

Mushrooming of substandard health facilities like Nursing homes and pharmacies do more harm than good, and changes in registration of such facilities is need to include severe punitive measures for the unethical ones. Such facilities are known to exploit patients by giving wrong drugs and substandard treatment.

### 5.2.5 Regulatory Guidelines

In this respect, it was established that weak regulations is closely related to poor service delivery. This was noted especially in the lack of essential equipments for radiology and medicine.

Strengthening the MOH role in staffing, procurement and resource allocation would have a positive impact in patient outcome.

### 5.2.6 Legal Implications

Medico-legal implications of poor patient compliance and satisfaction are enormous. Low compliance means increased morbidity, low satisfaction is related to the tendency to patient complaints and medico-legal claims.

### 5.2.7 Public Health Implications

The low level of the three dependent variables imply suboptimal utilization of health services with patients tending to avoid early consultation until sickness is serious. This increases morbidity and mortality. When health facilities are used in such circumstances, they are often misused due to over the counter dispensing, avoidance of immunization, polypharmacy and use of herbs.

Difficulties in controlling communicable diseases like malaria due to low compliance to drugs and poor health knowledge are serious aspects resulting from the findings. This also means that early detection of the killer cancers is not possible.

# CHAPTER 6

# CONCLUSIONS AND RECOMMENDATIONS

## 6.1 Conclusion

The study has demonstrated that we cannot deal with public health issues as a whole unless all the individual providers and the public are involved and empowered economically, legally, socially and knowledge-wise in a situation conducive for understanding the implications of health and epidemiology. Health determinants are interrelated and interdependent with all that pertains to life, be it socio-cultural values, behavioral, economic, ignorance, factors subsequent to environmental maneuvers and scientific advancement. Innovativeness in science and medicine is key to solving ever changing issues in the domain of public health.

1) The health institution has very low patient satisfaction. This was a result of multidimensional reasons including poverty on the part of patients, poor management and lack of focused government support.

2) Patient knowledge was low and was not given prominence by the physicians. With such low knowledge values, health literacy, which is the cornerstone in public health interventions, will be difficult to achieve.

4) Compliance to medication in the health facility was lower than expected. Economic difficulties besides factors mentioned for satisfaction play a major role in this.

5) The consultation model, as a simple cheap innovative, was able to significantly improve on the performance of the health facility in the three variables. It proved beneficial to the physicians in their consultation with the patient.

## 6.2 Recommendations

These could either be direct from the findings or indirect from the implications.

### 6.2.1 Direct Recommendations

1. Implementation of the consultation model: The proposed model proved useful and should be in use by physicians just as other models and guidelines used in clinical practice.

2. Regular measurements of satisfaction, knowledge and compliance required as a way of improving, monitoring and evaluating quality of service delivery.

3. Continuing professional development for physicians should be enhanced to emphasize not only technical skills but also other skills like communication and listening skills and psychosocial aspects of patient care.

4. Public health practitioners must understand that medical problems have a ripple effect in public health; they should thus enhance their complementariness with Medical practitioners. This

aspect results into low patient knowledge and compliance which imply poor utilization of health services and resurgence of resistant pathogens respectively.

5. Improved financial and administrative management is mandatory for enhanced service delivery like in procurement of essential medicines.

### 6.2.2 General recommendations

1. Improvement in Institutional frameworks

It was noted to be a hindrance to compliance and satisfaction. The framework should be improved through

-Improved organization and management, i.e. in procurement of drugs and Laboratory chemicals.

-M.O.H Coordinating committee formation or increased presence of the N.H.B.

-Quality assurance through the departments of standards and regulation at the M.O.H Offices or the N.H.B. The current structure is not effectively implimentable.

2 Monitoring and evaluation of the health system

This is an integral part of the policy to ensure that planned activities and targets are maintained and supported by a functional information system. The M &E include inventory of resources, regular records of quality and periodic supervision. This should be done through questionnaires, checklists and reports.

3. Behavior Change Communication

This will support behavior and attitudes change. This will be done by dissemination of such models, standards and guideline. Continuing Professional Education should be entrenched in policy documents for wide coverage of all professionals. National training policy is needed to guide and integrate training and capacity building on basic patient needs and professionalism.

Thus automatic deregistration after sometimes for those who cannot update their knowledge and/or service should be applicable through such bodies like Kenya Medical Practitioners and Dentists Board.

4. Social Health Plan

National Hospital Insurance Fund is a good innovative, but is not all inclusive and does not cover outpatients, leaving the poor at the mercy of private practitioners. Such a health plan will ensure that health services for those with financial constraints are guaranteed.

5. Health care Financing

Capital Budget need to have adequate provision for operations and maintenance. Financial constraints continue to hinder service delivery as broken equipments and poor servicing is blamed for inability to perform optimally.

Health staff should be well remunerated so as to minimize private practice. Incentives like car loans should be provided, duty houses is a must for emergency services. Administration staff in Public Health departments must be versed with health administration to ensure basic critical resources are availed.

6. Medico-Legal Department Formation

For the purposes of creating awareness of the legal impact of their practice, there is need to have such a unit during training for specialization or as a strong department within the regulatory

bodies like KMPDB or the Kenya Medical Association. Currently, activities related to medico-legal aspects are poorly handled because of lack of skilled personnel in this area.

**6.3 Further research.**

1. This clinical trial should undergo the phase 3 of clinical trials. This will be a multicentre study that would involve the whole country. This will aid generalisability of the model and would pave way for National Policy on this model.

2. The study did not find a significant relationship between level of education and compliance to medication. Further research is needed to elucidate this finding because it will have a public health bearing on health literacy.

3. Does improved health literacy lead to less morbidity? This is questionable, the more the education one has, the more they get sedentary with poor lifestyle, hence non- communicable diseases. A Trial is needed in this respect to clarify the connotation that Education improves overall morbidity. It definitely improves mortality and longevity, but probably at the expense of over utilization of health services.

4. Have we had improvement in the overall health indicators in Kenya attributable to introduction of performance contract by the Kenya Government? The contract emphasizes patient/customer satisfaction which is an objective in this study. An evaluation study to justify this should be documented, especially on the effect on the patient and public health, not on improvement on tax collection or administrative functions.

# CHAPTER 7

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## CHAPTER 8.

## APPENDICES.

### 8.1 Questionnaire.

## INTRODUCATION

This **voluntary** questionnaire will help us assist you better in getting your treatment. The answers you give are **anonymous** and are kept entirely confidential, feel free to indicate any answer you think is right after carefully reading the questions. If you are not sure with the answer, say so, **don't guess.** Don't indicate your name.

## BACKGROUND INFORMATION

Date:_____

Time:_____

Sex:_____

Age:_____

Personal number:_____

Estate of residence:_____

Occupation:_____

Highest level of education; Primary ☐ Secondary ☐ University ☐

Tertiary college ☐ None at all ☐

## SECTION A

To what extent do you agree with the following statements about how you were handled at this facility. **1 means strongly disagree and 10 is strongly agree. The degree of agreement corresponds to the numerical strength of the number. A number say 6 means more agreement than say 4.**

| | **Statement** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AS1 | The doctor at this clinic has my best interest at heart | | | | | | | | | | |
| AS2 | The doctor knows me well | | | | | | | | | | |
| AS3 | The doctor at this health centre understands the plight of patients | | | | | | | | | | |
| AS4 | The range of doctor services at this facility is satisfactory | | | | | | | | | | |
| AS5 | The attire and grooming of the doctor is appropriate for his profession | | | | | | | | | | |
| AS6 | The doctor told everything about my treatment | | | | | | | | | | |
| AS7 | Some things about my consultation with the doctor need a lot of improvement | | | | | | | | | | |
| AS8 | The doctor examined me very thoroughly | | | | | | | | | | |
| AS9 | The doctor was interested to me as a person, not just my illness | | | | | | | | | | |
| AS10 | I understood my illness better after seeing the doctor. | | | | | | | | | | |
| AS11 | I felt this doctor really knew what I was thinking. | | | | | | | | | | |
| AS12 | Consultation time was enough and adequate. | | | | | | | | | | |
| AS13 | I would find it difficult to tell this doctor about some private things. | | | | | | | | | | |
| AS14 | The Doctor was friendly, listening and respectful. | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AS15 | The Doctor explained well what he/she were doing during consultation. | | | | | | | | | | |
| AS16 | The Doctor sought consent before physical examination of my body. | | | | | | | | | | |
| AS17 | Findings were explained well by the doctor. | | | | | | | | | | |
| AS18 | I felt positive about coming back to the same doctor incase of a future illness. | | | | | | | | | | |
| AS19 | I am completely satisfied with my visit to the doctor. | | | | | | | | | | |

AS20 Did you understand the medicines you were given by any name? Yes ☐ No ☐

| | **Statement** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AS21 | The doctor explained the purpose of each of the medications well | | | | | | | | | | |
| AS22 | The doctor reminded me to ensure completion of the dosage | | | | | | | | | | |
| AS23 | I was informed when to come/go for a review and when I should expect to feel better | | | | | | | | | | |
| AS24 | I had to ask the doctor when to come/go for a review and when I should expect to feel better | | | | | | | | | | |
| AS25 | I felt confident to take the doctor's prescription | | | | | | | | | | |

## SECTION B

$B_1$ (i) Do you know the names of the doctor who attended you? Yes ☐ No ☐

If yes, give the names……

$B_2$ (ii) Do you know the diagnosis of your disease? Yes ☐ No ☐

If yes, what was the diagnosis of the disease or problem that took you to the doctor?

……

$B_3$ (i) Do you know the cause of your disease? Yes ☐ No ☐

If yes, what is the cause of the disease or disease or problem that took you to the doctor?

…….....

$B_4$ (iv) Do you know how the disease or problem is transmitted? Yes ☐ No ☐

If yes, how does the transmission occur?

……....

$B_5$ (v) Do you know prevention of your disease? Yes ☐ No ☐

If yes how can the disease or problem prevented?

……....

$B_6$ (vi) Are you aware of any complications of your disease? Yes ☐ No ☐

If yes, name the possible complications or bad consequences of the disease or problem that took you to the doctor?

……

……

$B_7$ (vii) Can you identify the medicines you were given by the Doctor by name or by any other way you know? Yes ☐ No ☐

If yes, identify them.

a)……..(b)…….

c)……..(d)…….

e)……..(f)……..

g)……...

$B_8$ (b) Can you give the purpose of each of the medicines given to you? Yes ☐ No ☐

If yes, write some of the purposes.

……

……

$B_9$ (viii) Do you know how often you should take your medicines? Yes ☐ No ☐

If yes, how?.....

……

$B_{10}$ (iX) Do you know the side effects of the medicines given to you?

Yes ☐ No ☐

$B_{11}$ (b) Do you know what you will do about the side effects? Yes ☐ No ☐

If yes, what will you do about the side effects?

……

……....

## MEDICATION COMPLIANCE FORM

NAME……..... P/NO……..Pills dispensed…….....

Date of pill count……... Day of pill count…….Time of pill count……..

2 Contacts (Mobile)……...

| **Medicine and daily dosing** | **Expected remaining pills** | **Actual remaining No.** | **Date when it got finished** |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Reason for failing to comply or for complying?

Any comments……

---

## 8.2 TRAINING MANUAL ON THE PROPOSED CONSULTATION MODEL.

**Participants**; Physicians from Ngaira Health Centre Sampled into The Model Group.

**Facilitators**; Dr Kodhek Argwings-(Lead Investigator and Practicing Physician ).

Mr. Ayieko Ongany (Lecturer and Psychologist).

Mrs. Milka Mwango (Pharmacy Technologist and Practicing Counselor).

**Objective**; Training on the physician-patient interaction Model during the consultation process with the view of enhancing patient Satisfaction, patient Knowledge and Compliance to prescribed Medication.

**Venue**; Ngaira Health Centre.

**Day 1.-Mr. Ayieko and Mrs Mwango.**

***1st session.***

- Introduction of the participants and the subject
- Aims of both the patient and physician in a consultation.
- Outcome of a good consultation.
- Changing times, Patient rights of quality health and medico-legal implications.
- Socio-cultural, medical, psychological, economic, legal and educational basis of disease and illness.
- Increasing voice of the patient. Satisfaction is gaining new legitimacy. Importance of health literacy and compliance.

***2nd session.***

- To achieve a meaningful consultation,
  - ✓ Establish sense of trust, power of emotional intelligence.
  - ✓ Uncover patient actual needs rather than hearing and acting.
  - ✓ Think dialogue, not monologue.
  - ✓ Don't force the 'close'.
  - ✓ Always follow-up.
- Critical elements of physician patient communication.

- ✓ **CARE.**

**C**—Communicate verbally/non verbally, openness and genuineness needed.
**A**—Appropriate communication Behavior for age and social status.
**R**—Recorgnize Patients experience.
**E**—Express Support and Partnership.

- ✓ Diagnostic Communication and Problem Solving

**SOLVE.**

**S**— Shun interruptions
**O**— Open ended questions encouraged.
**L**— Listen to feel joy
i— in**v**estigate by asking more.
**E**— Explore patient opinion.

- ✓ Counseling and Education.

**EDUCATE.**

**E**— Explore patient understanding of illness
**D**— Describe and discuss illness
**U**— Use appropriate vocabulary
**C**— Choose feasible treatment plan
**A**— Advise patient on behavior.
**T**— Target final comments and summarize.
**E**— Encourage more questions and establish follow-up actions. Encourage patient to take full course of medication given.

**Day 2. Dr. Kodhek**

***1st session.***

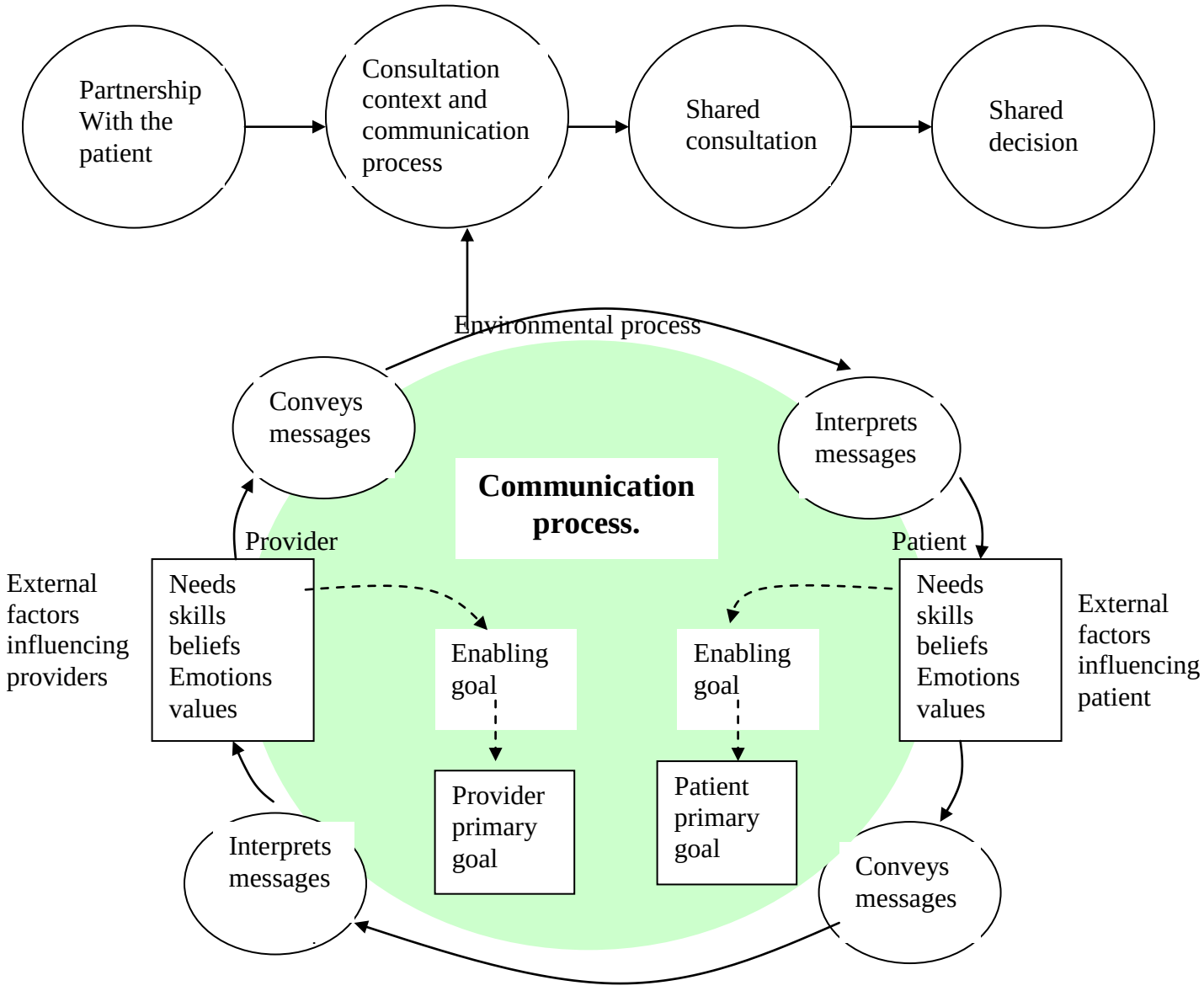


***Figure 8.1: Training on the consultation model.***

- Introduction to the proposed 4-stage consultation model as per conceptual framework
- Critical elements of the model.
- Application of the model.

***2nd session.***

- Practical demonstration of the model.

**Day 3.-Dr. Kodhek.**

**1st session.**

- Demonstration in the consultation rooms with consenting patients.

**2nd session**.

- Physician to practice alone.

**Day 4-7.**

- Physician to Practice.

**Day 8.**

- All facilitators and physicians to review progress and loopholes in a discussion.

## 8.3 BENCHMARK STANDARDS FOR MEASUREMENT OF THE VARIABLES.

The Universal declaration of Human rights of 1948 gave rise to the Patient bill of rights adopted in 1998 by United States advisory commission on consumer protection and quality in healthcare industry. This bill includes

i. Confidentiality of medical records: No disclosure and secrecy of consultations.
ii. Protection of the privacy
iii. Right to refuse treatment.
iv. Right to stop treatment
v. Right to information regarding treatment.
vi. Right to participate in decision about treatment.

These bills of rights gave rise to physician or the provider competency framework in a consultation with the patient as expressed by the W.H.O. Clinical Standards for unspecialized medical practitioners and the World Health Professionals association. The clinical standards expected include

i. Partnership with the patient/families in treatment and decision.
ii. Ethical behavior of the provider as accepted by the society.
iii. Proper and prompt clinical diagnosis using scientifically accepted and proven methods (in history taking, examination and investigations) and instruments.
iv. Full disclosure of information (education) on disease, treatment and prognosis. Productive communication.
v. Non discriminatory relationship.
vi. Upholding informed consent, confidentiality, respect and attentive listening.
vii. Save life, don't harm. Ability to understand risk of procedures.
viii. Proper time management and team work with others.
ix. Understand preventive care and risk factor modification.
x. Ability to use information technology to access clinical care.

## 8.4 DEFINITION OF TERMS.

**Affect** Emotional tone a person expresses

**Antibiotics.** These are chemical agents that are effective against bacteria.

**Concordance.** This is an agreement reached after negotiations between a patient and a health care professional that respects the beliefs and the wishes of the patient in determining weather, when and how the medicine is to be taken.

**Continuing Professional Development** in Medicine is a process outside the formal undergraduate and postgraduate training that enables a medical or dental practitioner to maintain and improve standards of medical practice and care through training and development of knowledge, skills, ethical attitudes and behavior.

**Empathy**. Capacity to recognize or understand another's state of mind or emotion.

**Guideline**. It's a statement of indication of policy or principle put forward to set standards.

**Persuasion.** Methodologies aiming at changing by means of communication the mental state of the receiver.

**Mood.** Characteristic state of feeling or general pervasive emotional state.

**Resistance**. This is loss of effectiveness of antibiotics (Rang H.P et al, 2003).

## 8.5. MANUSCRIPT ABSTRACT FOR PUBLICATION IN THE EAST AFRICAN JOURNAL OF PUBLIC HEALTH.

The study was occasioned by the resultant effect of poor quality service provision in most of our health institutions. Patient satisfaction after physician consultation, Health literacy and patient compliance to medication have been noted to be low at <50%, 23% and 50-66% respectively. Physician Patient consultation models to improve these indicators have been suggested in various set ups. *Objective*: To measure these three indicators and to test the usefulness of the proposed Physician Patient consultation model. *Methods*: It was a Post-Test only with control design clinical trial at the Ngaira Health Centre of N.C.C. A sample size of 338 was used for both the control and the Experimental arms of the study. Physicians who were sampled into the experimental group were trained on the Consultation Model. The structured questionnaire and the semi structured telephone interviews and or face to face interview were done for data collection on satisfaction/Knowledge and compliance respectively. Descriptive analysis of data through means, variances, Odds ratio, Confidence Intervals, graphs and pie chart was accomplished. Manual method and SPSS editor were used to get inferential data through chi square, t-tests and Pearson's correlation. *Results*: The levels of satisfaction, knowledge and compliance were noted at 35%, 25.5% and 50.38% respectively. The experimental group had a significant improvement in the three variables of 53%, 50.3% and 68.9% respectively and at ($\chi^2$ =216, df 4, p< 0.05), ($\chi^2$ = 12.174, df 1, p< 0.05) and ($\chi^2$ = 7.18, df = 1, p<0.05) respectively. The more educated had significant improvement in knowledge acquisition. *Conclusion*: The model is superior and should be institutionalized for use to improve service delivery. *Recommendations:* Physicians and professional bodies like K.M.P.D.B should recognize the model for use. There is also need for behavior change communication, improvement in institutional frameworks, M & E of health care, Medico-legal output and Health care financing. Phase III trial of this study is needed for wide usage nationally and internationally.