

**Compliance In Medication Administration
Post-Hospitalisation**

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**A dissertation submitted in partial fulfilment of the
requirements of the Masters in Gerontology and
Geriatrics (M.Ger)**

European Centre For Gerontology

University Of Malta

March 2014



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My Family

ACKNOWLEDGEMENTS

I feel indebted to a number of persons to whom I wish to express my gratitude

Professor Troisi and the Staff at the European Centre For Gerontology.

Professor Rizzo Naudi, Faculty of Health Science.

Dr. L. Camilleri, Senior Lecturer – Statistics and Operations Research.

Mrs. Therese Bellia, my supervisor for her professional expertise.

Dr. A. Fiorini, Consultant Geriatrician on behalf of the Research Committee at the Rehabilitation Hospital Karin Grech.

Dr. S. Abela, Head of Clinical Services at the Rehabilitation Hospital Karin Grech.

Mr. Aaron Grech for his meticulous work for the layout of the dissertation.

The participants that contributed to this research study.

Mr. Aaron Camilleri, Mrs. Marise Gauci and Mr. Ian Mifsud, pharmacists at the Rehabilitation Hospital Karin Grech, for their professional guidance.

Ms. Theresa Micallef, Head of Social Work and Mrs. Lenore Micallef, Senior Social Worker at the Rehabilitation Hospital Karin Grech for their support throughout the duration of the course.

Colleagues at the Rehabilitation Hospital Karin Grech.

My Family, for their moral support throughout the writing of this dissertation.

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LIST OF ABBREVIATIONS

ADRs	Adverse Drug Reactions
HBM	Health Belief Model
MMDNA	Malta Memorial District Nurse Association
NSO	National Statistics Office
POYC	Pharmacy of Your Choice
RHKG	Rehabilitation Hospital Karin Grech
TTM	TransTheoretical Model

ABSTRACT

Compliance in medication-taking post-hospitalisation plays a pivotal role in ensuring that the patient's quality of life is safeguarded. Non-compliance in medication-taking poses several consequences not only on to the patient but also on the health care system. Medication non-compliance in patients leads to unnecessary hospital admissions, premature need for a residential placement, increased health care resources, poor quality of life and mortality. Compliance in medication-taking is extremely complex and it is affected by a variety of inter-related factors such as patient, health care provider and health care system factors. Looking at the patient and the caregivers, as the main protagonists, as well as, addressing their needs and concerns within an inter-professional team practice, is essential to improve medication compliance. Health care professionals have a significant role in improving patients' compliance in medication-taking post-hospitalisation.

Keywords:

Compliance, Medication-Taking, Older Persons, Post-Hospitalisation

Chapter 1

Introduction

CHAPTER 1 – INTRODUCTION

1.1 Background Research

Returning home from hospital is not always a smooth transition especially if one has been away from home for some time. Several studies (Mistiaen, Duijnhouwer, & Ettema, 1999; Bull, 2000; Hyde, 2000; Cole, 2001; Parker et al., 2002; Shepperd, 2004) consistently report that many patients, particularly older persons, experience a number of challenges and struggles such as reduced levels of independence in their activities of daily living (ADLs) and self-care (Tierney, Worth, Closs, King, & Macmillan, 1994; Waters, Allsopp, Davidson, & Dennis, 2001), problems managing medication (drug and dosage regimen) (Berg, Dischler, Wagner, Raja, & Palmer-Shevlin, 1993; Claxton, Cramer, & Pierce, 2001) and requiring help from others to carry out the housekeeping tasks, (Tierney et al., 1994; Waters et al., 2001) during the first weeks at home after discharge from hospital.

What is lacking in research is a definition that both identifies and clarifies post-discharge problems within a time frame. Naylor (2002) attempts to define a time frame post-discharge as “4 to 6 weeks post-discharge represents a critical period when many [older persons] are at highest risk for poor discharge outcomes” (<http://www.ncbi.nlm.nih.gov/pubmed/12092508>). An empirical study carried out by Mistiaen, Duijnhouwer, Prins-Hoekstra, Ros, and Blaylock (1999), reported that discharge problems reach their peak within the first week when compared to 30 days post-discharge.

Patient compliance with medication-taking post-hospitalisation should be of great concern to all hospital specialised professionals because it plays an important role on the patient's quality of life and well-being (Cote, Farris, & Feeny, 2003). Substantial literature indicates that older persons have difficulties taking their medications particularly post-discharge (Tierney et al., 1994; Forster et al., 2004).

In their study among older persons (65+), Beers, Sliwowski, and Brooks (1992), found that 64% took at least one medication that was not prescribed on discharge, an astounding 73% did not comply with the dosage regimens as prescribed, and furthermore, the authors report that 32% did not take any of the prescribed medications. Similar to these findings, Burns, Sneddon, Lovell, McLean, and Martin (1992), claim that they noticed differences between compliance in medication-taking during hospitalisation and post-discharge.

Cline, Bjorck-Linne, Israelsson, Willenheimer, and Erhardt (1999), reported that 27% of older persons were already found to be non-compliant 30 days post-discharge. It is interesting to note that the patients were supplied, both written and verbal, instructions to be able to follow their medication regimen accordingly. However, it transpired that difficulties were still encountered. During a prospective cohort study carried out by Mansur, Weiss, Hoffman, Gruenewald, and Beloosesky (2008) on 198 older persons (65+), 30% were reported to be non-compliant to at least one drug one month post-hospitalisation. The authors suggest that in order to improve compliance to a hospital medication regimen, regular visits to the general practitioner post-discharge should be encouraged and a decrease in the number of long-term medications should be noted. Meanwhile, during a qualitative survey

carried out by Mulhem, Lick, Varughese, Barton, Ripley, and Haveman (2013) on 46 older persons (65+), 6.5% were found to be compliant with their medication taking post-hospitalisation within 24 to 48 hours of discharge. From the above data, it is evident that examining patient's compliance in medication-taking post-discharge is imperative so as to benefit patient's safety, treatment and costs.

On the day of discharge, patients are issued a discharge letter which includes a detailed summary of the patient's diagnosis together with a list of medications. It is a well-known fact that changes in medication, both in drug and dosage administration, takes place during hospitalisation (Hajjar et al., 2003; Himmel, Tabache, & Kochen, 1996). Changes in medication may include discontinuity of certain medications taken pre-hospitalisation and the addition of new medications to be taken post-discharge.

Adapting to different drug and dosage regimens in older persons, may be difficult to maintain post-discharge. This is due to factors such as lack of information provided regarding the change in treatment (Burns et al., 1992; Cochrane Mandal, Ledger-Scott, & Walker, 1992). Consequently, patients may feel sceptic of taking such a medication for fear of side effects. A study published in the *Pharmaceutical Journal* '*Intentional non-adherence in elderly patients: Fact or fiction?*' reported that a hefty one-third of older persons changed their medication regimen due to side effects already experienced (Lowe & Raynor, 2000). Such a situation continues to highlight the needs for further research and innovation that may significantly improve compliance in medication-taking post-hospitalisation in the older population.

1.2 Addressing the Research Question

This study aims to find answers to the research question: ‘To what extent are patients over the age of 60 discharged from the Rehabilitation Hospital Karin Grech (RHKG) to home compliant in their medication-taking: Six weeks post-discharge?’ To answer this question the researcher will be looking into the situation at the RHKG as the vision of the hospital is to be “A centre of excellence entrusted with the delivery of person focused specialised care and rehabilitation” (https://ehealth.gov.mt/HealthPortal/health_institutions/hospital_services/karin_grech/introduction.aspx) and the Mission Statement states that:

Staff will work with persons and their carers to deliver sustainable, interdisciplinary care and comprehensive rehabilitation at the point of need in synergy with other providers, maximizing individual potential and optimizing outcomes, embracing a philosophy of dignity, respect, trust and life long learning (Ministry for Health 2013a – https://ehealth.gov.mt/HealthPortal/healthinstitutions/hospital_services/karin_grech/introduction.aspx)

1.3 An Overview of the Rehabilitation Hospital Karin Grech

The Rehabilitation Hospital Karin Grech is a hospital that focuses in “specialised care and rehabilitation” (Ministry for Health, 2013a – https://ehealth.gov.mt/HealthPortal/health_institutions/hospital_services/karin_grech/introductions.aspx) to a wide range of persons including young adults and older persons. Such a service is offered through inter-professional teamwork, with the aim of helping these persons, to achieve their maximum potential independence in order to return and live in the community.

Way, Jones, and Busing, (2000) defines inter-professional practice as a “collaborative process for communication and decision making that enables the separate and shared knowledge and skills of care providers to synergistically influence the client/patient care provided” (<http://www.ocfp.on.ca/english/ocfp/communications/public-ations/default.asp?s=1>). Although, there might be an element of overlap between the different professions, they compliment and strengthen one another. The inter-professional team at RHKG is composed of Consultant Geriatricians; Doctors; Ward Managers; Nurses; Occupational Therapists; Physiotherapists; Social Workers; Speech Language Pathologists and Pharmacists. It is significant to note that the profession of the pharmacist was first introduced to the inter-professional team formerly known as Zammit Clapp Hospital in 1991 (Rizzo Naudi, personal communication, September 26, 2013).

The Hospital is presently manned on nine wards (8 wards specialising in Geriatric Rehabilitation and 1 ward specialise in Physical Rehabilitation). Although there is this distinction between the wards, it is noteworthy to point out that all wards strive to work towards a commonly agreed goal “to help [patients] regain functional abilities and return to their [own] homes” (RHKG Annual Report, 2012, p.1). Besides these nine wards, the hospital also provides follow-up appointments at Day Hospital and Out-Patients.

During the year 2012, RHKG had a total of 1564 admissions and the average age of all in-patients was 79.7 years. Out of 1564 admissions, 1287 were admitted to the Geriatric Rehabilitation Wards, (mean age 81.6 years) and 277 to the Physical Rehabilitation Ward (mean age 70.8 years). In 2012, there were 707 patients

(46.5%) that were discharged to their own home as compared to 678 patients (46.9%) in 2011 and 589 patients (45.3%) in 2010 (RHKG Annual Report, 2012).

1.4 Aims of the Study

- To assess patients' compliance in medication-taking six weeks post-discharge;
- To explore the reasons for non-compliance if present;
- To raise further awareness about such a problem and hence shed light on ways to improve compliance in medication-taking.

1.5 Significance of the Study

There is little to no research in Malta (Mizzi, 2002) regarding compliance in medication-taking once patients over the age of 60 are discharged home from a rehabilitation hospital. This research should give some indication on ways of improving compliance in medication-taking in elderly patients discharged from the Rehabilitation Hospital Karin Grech.

People who will directly benefit from this study include specialised and skilled professionals who work with older persons such as in hospitals and residential homes. Furthermore, older persons themselves, students, caregivers and policymakers should also benefit.

1.6 A Demographic Overview

Ageing population is a phenomenon that is taking place around the world and the European Union appears to be the main stakeholder. According to the United Nations (2011) in 1980, there were 378 million people over the age of 60 in the world. Over the past decades the population of older persons has increased to 759 million people and it is projected to reach 2 billion by 2050.

The population of Malta, like any other country around the world is experiencing changes both in its age structure and rate of growth. During the period between 1995 and 2005, the total population of Malta increased to 404,962 from 378,132 in 1995. This shows an increase of 26,830 persons or 7.1 per cent. The population pyramid of Malta, like several other countries around the world, lost its pyramidal shape to a linear shape.

According to the 1995 Census of the Maltese population, there had been an average rate in population growth of about 0.9 per cent per year. The period between the 1995 Census and the 2005 Census saw a decline in the average annual growth by about 0.7 per cent per year. This clearly indicates that the population in Malta is undergoing an ageing process. In fact, according to the 2005 Census of the Maltese population, a remarkable shift in the demographic structure was noted, with an indication towards an ageing population. One main characteristic that reflected the change in the age structure between the two Census 1995-2005 was mainly due to a decrease in the fertility rate. According to the National Statistics Office (2011), the number of births in Malta decreased from 4,143 in 2009 to 4,008 in 2010, a difference of 135. On the other hand, the number

of deaths decreased from 3,221 in 2009 to 3,010 in 2010, a difference of 211. According to the European Union Commission (2011), the population in Malta is ageing rapidly primarily due to the influx of the baby-boom generations born between 1946 and 1950.

Furthermore, advances in health and medical care together with improved nutrition have contributed to an increase in life expectancy for both genders. Additionally, such progress has also contributed to an increase in older persons aged 60 years and over. In fact the elderly segment has increased to 22.9 per cent in 2010 from 18.8 per cent in 2005. It is projected that by 2025, the percentage of older persons will increase to 30 per cent while by 2050; there will be a further increase to 36 per cent. Further projections indicate that 42 per cent of this group will be aged 75 years and over (NSO, 2005; 2007; 2012).

The total population in Malta in 2012 totalled to 421,364 with just over half of the population being females reaching 55 per cent of the total. Out of 421,364 persons, 397,222 are Maltese citizens while 24,142 are foreign citizens. Population projections according to the National Statistics Office (2010) indicate that the population will increase to 429,000 persons by 2025 and it is expected to decrease to 350,000 persons by 2060. Such a situation is mainly attributed to a decline in the fertility rate and an increase in longevity. Furthermore, the above mentioned projections continue to show a continuous ageing population. In fact, the population of older persons aged 65 years and over is estimated to increase to around 111,700 an increase of 72 per cent compared to 2010.

These remarkable changes in the population structure are attributed to a decline in birth rate and an increase in life expectancy for both men and women. Moreover, these changes clearly highlight that the older population in Malta is growing at a fast rate when compared to other age groups. As a result of these demographic changes two main problems are identified, namely, a growing ageing population and a growing labour force, consequently, putting great demand on the socio-economic sector (NSO, 2010; 2011). This ageing phenomenon is putting increased demand on the health, economy and social spheres. Consequently, the creation of new employment opportunities increases resources and incomes which enables for the provision of finance to support welfare programmes for the older population (Delia, 1998). In a report presented by the European Commission (2012) entitled: 'The 2012 Ageing Report: Economic and Budgetary Projections for the EU 27 Member States', highlight that due to these remarkable changes in the population structure, the impact on economy is increasing.

1.6.1 Socio-Demographic Data:

An Overview of the Older Population in Malta

The older population (60+) in Malta is a fast growing segment. According to the NSO News Release issued on the International Day for Older Persons (2013), the population of older persons represents 102,026 or 24.2 per cent of the total population. These findings confirm that there was an increase of 3,479 persons from the previous census. This segment of the population can be further divided into two broad categories namely the 'young-old' and the 'old-old'. The 'young-old' population is defined as those in the 60-74 year age cohort and are expected to be healthy and do not suffer from any mental and physical abilities as well as being

socially active in the community. The 'young-old' population is made up of 72,582 persons from the total old population in Malta (NSO, 2013). On the other hand, the 'old-old' population are those persons who fall within the 75+ year age bracket. The 'old-old' population tend to be frail, experience a change in level of independence so much so that, many a times, caring and nursing needs will be required. The 'old-old' population represents the remaining of the total old population in Malta i.e. 29,444 persons (NSO, 2013).

1.6.2 Gender

In 2008, the life expectancy in Malta for females stood at 82 years while that for males reached 77 years. Such an observation is noted to be across all the countries within the European Union. In fact, it is estimated that women compared to men, live an average of an additional 6 years. In their research, Bond, Peace, Dittmann-Kohli and Westerhof (2008) reported that in the European Union, the estimated life expectancy for women is 82.1 years while that for men is 75.1 years. Comparing life expectancy in Malta and that of the European Union, the above data indicates that life expectancy in Malta surpasses slightly that of the European Union. Also, according to the above findings, it is anticipated that women outlive males. However, it is important to note that women tend to experience from multiple co-morbidities compared to their male counterparts (Department of Health Information and Research [Malta], 2008).

A study conducted by Eurostat (2008) entitled: *'The Life of Women and Men in Europe'* highlights that on average, by the age of 65, women are expected to live on average a further 19.5 years while on the other hand, men are expected to live

a further 15.5 years i.e. a difference of 4 years favouring women. In the study conducted by Bond et al. (2008), the authors portrays the experience of women entering into old age on a negative note such that the researchers mention several possible losses such as the loss of a loved one, increased risk of suffering from a chronic condition such as Hypertension, feelings of loneliness and reduced income. In Malta, the scenario of older women seems to be on a more positive note. This is because, in a speech given by the former Prime Minister prior to the 2013 elections, Maltese older women and men participated in a European survey in relation to their quality of life. The results of this survey reported that Maltese women scored top place while Maltese men scored second place amongst their European counterparts respectively.

1.6.3 Regions

According to the 2011 Census of the Maltese population, the Maltese Islands are divided into six regions. These regions are the Northern, Southern Harbour Region, Northern Harbour Region, South Eastern Region, Western Region and Gozo and Comino. It was observed that the highest percentage of older persons (60+) hailed from the Northern Harbour Region i.e. 32%. On the other hand, Mdina which is the smallest locality in Malta, with 253 persons, is the locality with the oldest population with an average age of 52.1 years. This is then followed by the locality of Floriana with an average age of 48.3 years closely followed by the locality of Luqa with an average age of 48.2 years. It is interesting to note that the three mentioned localities have a type of residential setting for older persons. In Mdina, there is a nun's convent run by the Church institution while in Floriana and Luqa there are 2 homes that caters for the elderly which are cared for by the State.

1.7 The Concept of Ageing

1.7.1 Defining Ageing

Ageing has been defined in different ways and to date there is no single formal definition. According to Comfort (1960) the term *Ageing* can be defined as: "an increased liability to die, or an increasing loss of vigour, with increasing chronological age, or with the passage of the life cycle" (p.8). Whereas Frolkis (1982) defines the term *Ageing* as: "a naturally developing biological process which limits the adaptive possibilities of an organism, increases the likelihood of death, reduces the life span and promotes age pathology" (p.4).

Strehler (1982) argues that ageing is not the sum total of combined pathologies. He pointed out that not all the changes in structure and function that are associated with age may be considered as fundamental age related changes. Therefore, he suggested that fundamental age related changes must meet the following four criteria:

1. They must be *deleterious*; (they must reduce function)
2. They must be *progressive*; (they must take place gradually)
3. They must be *intrinsic*; (they must not be the result of a modifiable environmental agent)
4. They must be *universal*; (they must occur in all members of the population)

Many studies have reported that they are against the concept of universalism and thus it makes it difficult to discuss such a concept. On the other hand, research shows that Strehler's concept of deleterious, progressive and intrinsic changes are still valid nowadays (Smith, 1993; Finch & Rose, 1995; Miller, 1996).

1.7.2 The Process of Ageing

The process of ageing takes place as changes happen in the individual's cells and organs. As a result, changes occur in the individual's appearance and function. The process of ageing is continuous, complex, biological, and dynamic; it is an inevitable process that begins with birth and ends with death. As ageing is continuous from birth, cells begin to die, which is a normal process of the individual's body function. These cells may die because they have lost the ability to divide or because they are damaged. Cells may be damaged as a result of harmful substances in the environment such as radiation, pollution and sunlight. Furthermore, cells may be damaged by certain by-products, namely free radicals. Although ageing is universal, the process of ageing takes place at different rates for each unique individual. This explains why some people remain physically active and intellectually creative well into old age. Today's society focuses more on the concept of functional age than on the concept of chronological age because people age differently and at different times. The concept of functional age promotes and focuses on the social and psychological competences of an older person. Therefore, each individual experiences the process of ageing differently which many a time, depends on one life's experiences (Weinman, 1987).

Research shows that there are several factors that impinge or cause ageing such as heredity (genes) and the environment. A debatable question is whether ageing is a product of nature or nurture. What is certain is that they both play a role however, research has not been able to indicate which one has a greater influence. The less fortunate may suffer from medical complaints particularly associated with ageing such as arthritis, high blood pressure and diabetes. Hearing, eyesight and digestion may also be affected.

Most physical theories of ageing are closely related such as the Marginal Theory and the Wear and Tear Theory. The Marginal Theory focuses on the concept of “use it or lose it”. This theory promotes the importance that an individual remains physically and mentally active to preserve one’s abilities thus, focusing on the “use it” concept. An important notion is that an individual’s marginal capacity differs from others. On the other hand, the Wear and Tear Theory developed by Weismann (1882, as cited in Kunlin, 2010), describes that an individual’s physical decline occurs when the body and cells are damaged by overuse and abuse. The major organs of the body such as the liver and kidneys are worn out due to various detrimental factors such as alcohol, nicotine and a high intake of fat which results in adipose tissue which settles around the organs. In return, this may lead to chronic diseases such as Coronary Heart Disease (CHD). Such detrimental factors may affect different parts of the body in a stochastic manner (Whitbourne, 1985; Thorson, 2000; Whitbourne 2001).

Scientists distinguish between two types of ageing namely Primary ageing and Secondary ageing. Primary ageing which also known as senescence, is a gradual and inevitable process of bodily deterioration throughout life that causes changes in the structure and composition of the body that are determined by heredity. Perhaps, one of the most damaging factors in primary ageing is the immune system. This is because, as a person ages, the body's ability to combat infection declines. This change occurs because the white blood cells present in one's immune system becomes less effective resulting in being more prone to chronic as well as acute illnesses such as pneumonia (Anstey, Stankov, & Lord, 1993; Anstey, Lord, & William, 1997; Belsky, 1999).

On the other hand, secondary ageing, depends primarily on one's lifestyle. This is because a lifestyle that promotes a well balanced diet, staying free from smoking and alcohol and being physically active can delay the effects of secondary ageing. Therefore, one can take some control over his/her ageing. Research shows that the most serious changes associated with old age result from secondary ageing. Some examples include, the circulatory system becomes less efficient and the vessels that carry the blood to and from the heart become clogged and constricted (Anstey, et al. 1993; Anstey et al, 1997; Belsky, 1999).

The ageing process may derive from changes occurring in different tissues due to intrinsic cellular mechanisms or changes in one's tissue which may be predominant. Mattson, Duan, and Maswood, (2002) argue that ageing is located within one tissue such as the brain. On the other hand, Kowald and Kirkwood, (1994) claims that ageing originates in all tissues. According to de Magalhaes

(2004), it appears that intrinsic changes occur in human cells as one ages. Although this is still debatable, it seems that intrinsic cellular mechanisms play a role in ageing, although these can be altered by extracellular factors such as hormones.

Damage-based theories, argues that ageing results from a continuous process of damage accumulation originating in by-products of metabolism. According to this theory, ageing is predominantly a result of interactions with the environment (Holliday, 2004). Hence, it identifies that certain genetic factors such as defensive or protective genes, play a role in ageing (Kirkwood & Austad, 2000). On the other hand, programmed theories of ageing defend that ageing is not a result of random or stochastic process but rather driven by genetically regulated processes. Hence, this theory argues that ageing is predetermined and occurs on a fixed schedule. Campisi (2000) outlines that ageing, can be a result of changes in gene formation which are either programmed or derived from DNA structural changes.

1.8 An Outline of the Dissertation

This following study has been divided as follows:

Chapter 1 is the general introduction, focusing on the importance of patient compliance in medication-taking post-hospitalisation. This introduction also highlights the challenges and difficulties experienced particularly by older persons, once discharged home from hospital. This is then followed by discussing why the research question: 'To what extent are patients over the age of 60 discharged from the Rehabilitation Hospital Karin Grech (RHKG) to home compliant in their

medication-taking: Six weeks post-discharge?’ was chosen. Following is a brief overview of the demographic aspect of Malta, the concept of ageing and the process of ageing.

Chapter 2 deals with searching the literature from different sources including journals, books and internet websites. This diverse search is vital to broaden one’s knowledge on the subject being investigated prior to the study. This chapter also highlights conflicting data, together with the difficulties encountered by older persons, in relation to self-administering medication. Chapter 2 continues by pinpointing several potential predictors that influences compliance in medication-taking, for example poor communication and poor relationship between the patient and the health care providers.

Chapter 3 deals with the methodology used during this study. This chapter then focuses on the research design and the research tool used, the method used for the collection of the sample and the procedure used for both the pilot study and the actual study; followed by a brief overview of the pilot study. This chapter concludes by discussing the ethical considerations of the study.

Chapter 4 discusses the results of the research study. The first part of the chapter begins with giving a profile of the eligible patient sample. This is then followed by an overview of the findings of the actual research based upon a quantitative approach obtained from the different sections of the questionnaire. The final section of this chapter gives an overview of the main findings highlighted from the study.

Chapter 5 gives a more detailed explanation and discussion of the results obtained from the eligible patient sample substantiated with literature. The final section of this chapter draws upon the limitations of the study.

Chapter 6 is the general conclusion of this study and summarises the various topics discussed throughout the study. This chapter also highlights a set of recommendations based upon the study.

1.9 Conclusion

This chapter aimed at providing a better understanding about compliance in medication-taking in relation to older persons being discharged from a rehabilitation hospital to home. It also focused on the importance of patient compliance with medication-taking post-hospitalisation and the difficulties experienced by older persons during this transition. The aims and significance of this research study are clearly outlined. This chapter also provided a demographic scenario in relation to the older population with particular reference to Malta. It has been noted that the population of Malta, like any other country around the world is experiencing changes both in its age structure and rate of growth. Furthermore the population pyramid of Malta, like several other countries around the world, lost its pyramidal shape to a linear shape.

Chapter 2 deals with searching the literature from different sources including journals, books and internet websites. It is vital to broaden one's knowledge on the subject being studied prior to starting the study. This chapter also highlights conflicting data together with the difficulties encountered by older persons in

relation to self-administering medication. Chapter 2 continues by highlighting several potential predictors that influences compliance in medication-taking; for example poor communication and poor relationship between the patient and the health care providers. Methods to assess compliance in medication-taking together with strategies to improve compliance in medication-taking, the role of the clinical pharmacist and the POYC scheme, are also discussed. The chapter concludes by referring to some of the theoretical models associated with health behaviour with particular reference to the Health Belief Model and the TransTheoretical Model.

Chapter 2

Literature Review

CHAPTER 2 - LITERATURE REVIEW

2.1 Introduction

This chapter aims to provide a detailed review as to what has been studied, explored, discussed and documented about compliance in medication-taking in older persons post-discharge from a rehabilitation hospital. A literature search was carried out from different sources including journals, books, internet websites and academic data bases. The main data bases used include: PubMed; SAGE; and EBSCO. Further online services were accessed with documents related to the subject being investigated and inputted various keywords including compliance, medication-taking, older persons and post-hospitalisation. In addition further research was carried out by researching references which enabled the researcher to identify and examine further studies regarding the choice of topic being studied for this research study.

This task was an important part of the research study because the researcher became aware of what has been researched in relation to compliance in medication-taking post-hospitalisation. Furthermore, it was equally important and beneficial for the researcher to be knowledgeable about the subject because the researcher comes from the social field and not the medical field. Carrying out such an in-depth review also helped the researcher, who is a social worker by profession, to further understand the subject being investigated in this research study as well as being aware that achieving compliance in medication-taking post-hospitalisation to home is a very difficult task. Such a task is difficult to achieve

because it involves multiple of factors which may potentially influence the older persons' decision as to whether the older person decides to follow and take the medications as prescribed. Failing to do so may be detrimental on the older persons' health related quality of life and well-being.

The chapter starts off by giving an overview of the different terminologies used in research. This is then followed by a detailed explanation of the numerous potential factors that influences compliance in medication-taking together with the difficulties encountered by older persons in relation to self-administering medication. Methods to assess compliance in medication-taking together with strategies to improve compliance in medication-taking, the role of the clinical pharmacist and the POYC scheme will be also discussed. The chapter will also look at the profession of social work and the role of the social worker in a rehabilitation hospital, together with the community services available in Malta for older persons. The chapter concludes by referring to the most common theoretical models associated with health behaviour with particular reference to the Health Belief Model and the TransTheoretical Model.

There is no specific term that defines medication-taking behaviour. Over the last three decades, the terms used to describe medication-taking behaviour have undergone many changes. Three terms together with their negative counterparts have been identified namely *Compliance*, *Adherence* and *Concordance*. These three terminologies tend to be used interchangeably when referring to such behaviour.

2.2 Terminologies

The term *Compliance* has gained significant recognition in medication literature after being first identified in a study by Haynes, Taylor, and Sackett (1979) '*Compliance In Health Care*'. Haynes et al. (1979) defines the term *Compliance* as: "the extent to which the patient's behaviour matches the prescriber's recommendations" (p.1). Whereas Cramer et al. (2008) defines the term *Compliance* as: "the extent to which a patient acts in accordance with the prescribed interval and dose of a dosing regimen" (p.3). Such a term has been criticised, as it implies a one-way communication between the health care provider and the patient, where there is little or no participation from the patient and does not take into account the patient's beliefs, expectations and preferences (Horne, 1993; McGavock, 1996).

The second identified term is *Adherence* (Barofsky, 1978). Balkrishnan (2005) defines the term *Adherence* as: "the level of participation achieved in a medication regimen once an individual has agreed to the regimen" (p.517). While Horne, Barber, Elliott, and Morgan (2005) defines the term *Adherence* as: "the extent to which the patients' behavior matches agreed recommendations for the prescriber" (p.12). This is term is a preferred term when compared to compliance. This is because it promotes a two-way communication between the patient and the health care provider, it respects the patient's autonomy (WHO, 2003) and allows "more control over [one's] own health" (The Ottawa Charter for Health Promotion, 1986, p.3).

The third and last identified term is *Concordance* established by the Royal Pharmaceutical Society of Great Britain (1997). The term *Concordance* Horne et al. (2005), may be defined as: “an agreement reached after negotiation between a patient and a health care professional [who] respects the beliefs and wishes of the patient in determining whether, when and how medicines are to be taken” (p.33), whereas, Pound et al. (2005) defines the term *Concordance* as: “[an] anticipated outcome of the consultation between doctors and patients about medicine taking” (p.134).

From the three above-mentioned terms, concordance is the least preferred term because its definition is unclear and causes confusion on how such a term is to be employed in research and practice (Dieppe & Horne, 2002; Heath, 2003). For the purposes of this project, the terms compliance and non-compliance will be used.

2.3 Non-Compliance

“Non-compliance is an old phenomenon. The first recorded case took place in the Garden of Eden with dire consequences” (Alexa, 2006, p.15). A patient is described non-compliant “when failure to comply is significant [enough] as to interfere appreciably with achieving therapeutic goals” (Serracino Inglott, 1991, p.3). According to Corlett (1996), non-compliance may result from:

- i) not knowing how to take the prescribed medication (such as orally);
- ii) not understanding the benefits of taking the medications as prescribed;
- iii) fear of side effects;
- iv) forgetfulness;
- v) physical impairment.

The United States National Council on Patient Information and Education (NCPIE, 2007) suggest that non-compliance may consist of:

- i) not having a prescription filled;
- ii) taking an incorrect dose;
- iii) taking a medication at the wrong time;
- iv) forgetting to take doses; or
- v) stopping therapy too soon.

2.4 Types of Non-Compliance

According to Rajaei-Dehkordi and MacPherson (1997) there exist three types of non-compliance:

- i) *Accidental*: the patient may either forget to take the dose or may inadvertently self-administer due to lack of comprehension and understanding of instructions given.
- ii) *Triggered*: the patient may either start to feel better and decide to stop the medication, or alternatively may feel worse and decide to stop taking the medicine.
- iii) *Intentional*: the patient takes a conscious decision not to administer the medication as instructed.

2.5 Predictors of Non-Compliance

Over the past three decades several predictors of non-compliance have been identified (Morrison & Wertheimer, 2004; Vermeire, Hearnshaw, Van Royen, & Denekens, 2001; Vik, Maxwell, & Hogan, 2004). The World Health Organisation (WHO, 2003) has grouped potential predictors of medication non-compliance into 5 broad categories, namely: i) Social and Economic-related factors, ii) Health Care Team and System-related factors; iii) Condition-related factors; iv) Therapy-related factors; and v) Patient-related factors.

The potential predictors have been divided into 5 categories. For the sake of clarity, these issues will be discussed separately. It is, however, imperative to note that in practice these predictors are inter-related and therefore should not be viewed separately.

2.5.1 Social and Economic-Related Factors

2.5.1.1 Age

Age is often assumed to be a prevalent factor that influences the rate of compliance in medication taking. When compared to other age groups, older persons are particularly associated with an increased risk of non-compliance. Contrary to this popular belief, research has shown that age, in itself, is not a determining factor to compliance (Coons et al., 1994; Mallion, Baguet, & Siche, 1997). It does however become significant when in combination with other factors, as discussed below (Hertz, Unger, & Lustik, 2005; Viller et al., 1999; Senior, Marteau, & Weinman, 2004).

Evidence has indicated that non-compliance is a more distinct problem in older persons because they tend to suffer from multiple morbidities. Consequently, older people are more prone to be prescribed multiple medications to manage their various conditions. Hence the elderly may experience difficulty in self-administering their medications (Gray, Mahoney, & Blough, 2001; Hughes, 2004). A study carried out by Vik et al. (2004) reported that non-compliance among the older population exceeded 50%. Similarly, Kulkarni, Alexander, Lytle, Heiss, and Peterson (2006) revealed that out of 1326 patients (mean age 66 years), compliance rates vary from 72% to 83% for different medication classes.

Lipton and Bird (1994) argue that since 25% of older persons administer three or more drugs as part of their daily regime, older persons are more likely to be at risk for non-compliance. According to van Eijken, Tsang, Wensing, de Smet, and Grol (2003), compliance rates in older persons vary from 26% to 59%. Similarly, Kripalani, Yao, and Haynes (2007) reported that compliance rates in older persons vary from around 20% to 50%. Findings obtained by other researchers estimated the rate of compliance in older persons to be around 50% (Murray et al., 2004; Swanlund, 2010).

2.5.1.2 Gender

Several researchers agree that women were found to be more compliant than men (Kyngas & Lahdenpera, 1999; Viller et al., 1999; Kiortsis, Giral, Bruckert, & Turpin, 2000; Linberg, Ekstrom, Moller, & Ahlner, 2001). Whereas other studies reported the opposite (Sung et al., 1998; Hertz et al., 2005). Contradicting this, other studies suggest that there exists no relationship between gender and compliance

(Mallion et al., 1997; Horne & Weinmann, 1999; Spikmans et al., 2003; & Senior et al., 2004).

2.5.1.3 Education

One might anticipate that the higher the level of education and the more a person is knowledgeable about the diagnosis and treatment, the greater is the probability that a person is compliant. Study findings are however conflicting. A study carried out by DiMatteo (1995), found that individuals who attained a high level of education still experienced difficulty in understanding their diagnosis or the benefits of compliance. On the other hand, various studies suggest that individuals with a high level of education are more likely to obtain high compliance rates (Apter, Reisine, Affleck, Barrows, & ZuWallack, 1998; Okuno, Yanagi, & Tomura, 2001).

Other studies reported that individuals with a low education level showed better compliance rates (Kyngas et al., 1999; Senior et al., 2004). The study by Senior et al. (2004) affirms that individuals without formal educational qualifications had better compliance rates in relation to cholesterol medication. Findings obtained by other researchers found no correlation between education and compliance in medication-taking (Horne et al., 1999; Spikmans et al., 2003; Stilley, Sereika, Muldoon, Ryan, & Dunbar-Jacob, 2004). A plausible explanation, in the discrepancy of data, might be that individuals with a low education level have more respect and confidence in the doctor's advice.

2.5.1.4 Living Arrangements and Social Support

Living arrangements may be influential in improving compliance. Literature shows that older persons living alone, particularly if not coping, tend to experience greater difficulty in self-administering their medications and are at an increased risk of medication errors (Barat, Andreasen, & Damsgaard, 2002; Beckman, Parker, & Thorslund, 2005; DiMatteo 2004a; Dunbar-Jacob, Bohachick, Mortimer, Sereika, & Foley, 2003). A plausible reason might be lack of assistance to the older person to administer their medication taking post-hospitalisation (Najak, 1996).

The same studies also highlight that social support plays an important role in improving the compliance of older persons in medication taking e.g. those who have mobility difficulties or a pharmacy distant from home, are at a greater risk for non-compliance as they depend on others, such as family members, to collect the medication (Fincham & Wertheimer, 1986; 1988).

A study presented by Vassallo (2006) focused on patients (n=50) discharged from a geriatric hospital and their main carers. It was reported that despite giving the necessary information to the patients and their main carers regarding medication-taking post-hospitalisation, it was recommended that on-going care and follow-up in the community would be looked into in order to better support older persons and main carers with the aim of improving compliance in medication-taking post-discharge.

In their study, Fleming, Pulliam, Perfetto, Hanlon, and Bowling (1993) revealed that out of 100 patients (mean age 71 years) only 42% self-administered their medications. The study also reports that assistance in medication-taking was most likely to be provided by daughters (42%), spouses (26%), sons (8%), mothers and sisters (4%) or others (20%).

A study carried out by Simons, Tett, and Simmons (1992) suggests that older persons particularly frail would benefit from domiciliary visits by a pharmacist since they are more likely to lose contact with their community pharmacists. Such an approach might potentially improve compliance in medication-taking. In addition, using the same pharmacy is also noted to have a positive impact on medication compliance (Classen, Pestotnik, Evans, Burke, & Battles, 2005).

2.5.1.5 Cost of Medications

The following studies (Artz, Hadsall, & Schondelmeyer, 2002; Mahoney, 2005; Piette, Heister, & Wagner, 2004) demonstrated that there is a strong relationship between cost and compliance such that, the costs of medications negatively influences compliance in medication-taking. A study by Mojtabai and Olfson (2003) reveal that in the United States, two million elderly persons were not compliant with their medication-taking due to costs. Furthermore, according to Hutchison, Jones, West, and Wei (2006) and Osterberg and Blaschke (2005) the cost of medications was also reported to be a strong variable for non-compliance in older persons. A plausible reason might be that older persons have low income when compared to other age groups in society. Consequently, the older person might be unable to buy the necessary medication due to financial constraints. Further

studies have also reported an increased possibility of hospitalisation in older persons unable to buy the required medication due to financial difficulties (Col, Fanale, & Kronholm, 1990; Malhotra, Karan, Pandhi, & Jain, 2001).

2.5.2 Health Care Team and System-Related Factors

2.5.2.1 Patient-Health Care Provider

Multiple studies have shown that poor communication and poor relationships between the patient and the health care providers have a negative impact on compliance in medication-taking and consequently on the older person's quality of life (Barat et al., 2001; Schneider, Bugnon, Locca, & Conzelmann, 2006; Moore et al., 2004; Rubin, 2005; Vermeire et al., 2001; Vik et al., 2004; Vlasnik, Aliotta, & DeLor, 2005). The same studies suggest that the following measures can improve medication compliance in older persons:

- working on achieving a trustworthy and a positive relationship;
- communicating clear instructions;
- adopting a friendly attitude;
- avoiding use of medical jargon;
- explaining the importance of taking the medication;
- involving the patient and family members in any decision making;
- providing a detailed and comprehensible explanation about the medical condition;
- educating, understanding and being sensitive to the patient's concerns, expectations and beliefs about the illness and medication. All the above measures positively affect the final outcome of compliance (Barat et al.,

According to Ciechanowski, Katon, Russo, and Walker (2001) in a cross-sectional study (n=367) examining type 1 and type 2 diabetes reported that poor patient-provider relationship is associated with poor rates of compliance in medication-taking. Therefore, working on achieving a positive relationship between the patient and the health care provider is essential in order to improve compliance in medication-taking.

Studies presented by these researchers (DiMatteo, Reiter, & Gambone, 1994; De Geest, Abraham, Gemoets, & Evers, 1994) emphasise that the amount of information patients' received regarding their illness as well as the medications prescribed, had a positive impact with compliance in medication-taking.

In another study, Youssef (1983) focused on the impact of patient education on compliance in medication-taking post-hospitalisation. This study consisted of participants who were randomly divided into two groups. One group received education while the other group (the control group), received no education. Findings obtained from this research study revealed that the group of participants who received education was more compliant in their medication taking post-hospitalisation compared to the control group who received no education. Further studies have shown that patients who understood their medical condition and its need for treatment, together with understanding the purpose of the prescriptions,

positively correlates with compliance in medication-taking (Daltroy, Katz, Morlino, & Liang, 1991).

Krupnick et al., (1996) remarked on the relationship between the patient's compliance in medication-taking and alliance claiming that "the therapeutic alliance may help create a "holding" environment in which the acceptance of taking a drug may be enhanced and permit concerns to be addressed and worked through within the context of a supportive and collaborative relationship" (p.537). The notion of collaborative therapeutic relationship plays an important role in promoting and improving patient's compliance in medication-taking post-discharge (Sajatovic, 2005).

In an article presented by Lam, Elliott and George (2010), the authors used a meta-analysis in which they described ways to improve patient's compliance in medication-taking, by using a Self Administration of Medications Programme (SAMP) on elderly over the age of 65 in-patients. Study findings revealed that if patients, prior to discharge were educated to be able to self-administer their medications, the rate of compliance in the number of patients who would follow medication regimens, would increase.

Further evidence (Joosten et al., 2008; Wilson et al., 2010) suggest that encouraging patients' involvement with regards to their own medical decision making can potentially improve compliance in medication-taking post-hospitalisation. In turn, such a situation is important because the patients' opinion/involvement is valued. However, for this to be fruitful, it is also equally

important that health care providers listen and understand the patients' past and present experiences regarding medication compliance and document accordingly.

During an observational study carried out by Owens (2006) on 12 older persons (mean age 76 years) found that older persons are more likely to be compliant with their medication-taking if a caring approach is adopted by the health care provider. Furthermore adopting a shared decision approach and involving the patient and caregivers in any decision making was also noted to be a strong predictor in improving compliance in medication-taking (Deinzer, Veelken, & Schmieder, 2006).

It is often assumed that patients understand a significant amount about their medical condition. However in a classical study presented by Joyce Caple, Mason, Mathews and Reynolds (1969) it was reported that patients were unable to remember half of the information given to them by the doctor. In another study Makaryus and Friedman (2005) claim that two-thirds of the forty three patients who were recently discharged from hospital did not know at what time they had to take their medication.

It is common that patients often misunderstand medical terminology. In their study Thompson and Pledger (1993) noted that patients had a difficulty with the following three words namely 'stroke' (78%), 'orally' (38%), and 'symptom' (22%).

2.5.3 Condition-Related Factors

2.5.3.1 Chronic Conditions

Gascon, Sanchez-Ortuno, Llor, Skidmore, and Pedro (2004) reported higher compliance rates for the acute illnesses in comparison to the chronic diseases. According to the *Webster's New World Medical Dictionary*, an acute illness is classified as: "a disease with an abrupt onset and, usually, a short course" (<http://www.medterms.com/script/main-/art.asp?articlekey=2134>) while, the World Health Organisation (WHO, 2005) defines chronic diseases as: "diseases of long duration and generally slow progression" (http://www.who.int/chp/chronic_disease_report/full_report.pdf).

Chronic conditions are the leading cause of mortality in the United States representing 70% of all deaths (Saini, Schoenfeld, Kaulback, & Dubinsky, 2009). Substantial studies (Avorn et al., 1998; Benner, Glynn, Mogun, Neumann, Weinstein, & Avorn, 2002; Feldman, Bacher, Campbell, Drover, & Chockalingam, 1998; Flack, Novikov, & Ferrario, 1996; Mallion et al., 1997) have indicated that patients with chronic conditions, comply only to 50%-60% of the medications as prescribed, even though evidence have shown that medication improves life expectancy and quality of life.

It is estimated that in the United States, 80 per cent of older adults aged 65 and older, are diagnosed with at least one chronic condition (Centers for Disease Control and Prevention, 2007). Evidence shows that chronic conditions cluster and older persons suffering initially from a single chronic condition have been noticed

to have an increased likelihood of eventually suffering from multiple chronic conditions (Guralnik, LaCroix, Everett, & Kovar, 1989; Schellevis, van der Velden, van de Lisdonk, van Eijk, & van Weel, 1993). Furthermore, older persons may be more susceptible to complications of treatment as a result of complex drug regimens, poor co-ordination of care and frailty (Wolff, Starfield, & Anderson, 2002).

The estimated prevalence of two or more chronic conditions in older persons aged 65 and older ranges from 55% to 98%. In addition multiple chronic diseases are negatively associated with surgical procedures, premature need for an admission to a nursing home placement, changed level of independence. This may lead to dependency on equipment or other people, limitations in role performance, sadness and fear (Verbrugge & Patrick, 1996). Other negative factors associated with chronic conditions are: poor quality of life, mortality, hospital admissions, decreased functional mobility, decreased functional abilities and use of health care resources (Caughey et al., 2010; Marengoni et al., 2011). The cost of health care resources for an older American person is calculated to be 3 to 5 times greater in comparison to their younger counterparts (Centers for Disease Control and Prevention, 2007).

Further data shows that low rate of compliance to medications has been well documented in relation to older persons suffering from chronic diseases e.g. asthma (Barr, Stomers, Speizer, & Camargo Jr., 2002); cardiovascular diseases e.g. congestive heart failure (Evangelista et al., 2003), hypertension (Lowry,

Dudley, Oddone, & Bosworth, 2005) and cholesterol management (Senior, et al., 2004).

Literature reports that around 50% of older persons diagnosed with a chronic disease fail to take their medications as prescribed (Lee, Grace, & Taylor, 2006; Sabate, 2003). A study undertaken by Mann, Allegrante, Natarajan, Halm, and Charlson, (2007) reports that compliance to statins was poor at 6 months follow-up. This study reveals that 55% of the participants (n=71) were described as non-compliant.

Several researchers have identified an additional factor for non-compliance, namely, lack of presenting symptoms (asymptomatic) e.g. hypertension; hypercholesterolemia. Therefore, an older person suffering from a single or multiple chronic conditions might believe that the medication may not be required. Additionally, an older person might be sceptical regarding the effectiveness of the medication, or feel well, and take a conscious decision to stop treatment. Other identified factors for non-compliance relating to chronic conditions are: fear of side effects; fear of adverse drug reactions; fear of being dependent on the medication; lack of immediate symptoms when skipping the medication; inability to come to terms with accepting a chronic illness, and the older person's attitude, perception, health beliefs and lack of knowledge about the disease (DiMatteo, 2004b; Mann et al., 2007; Senior et al., 2004; Ulrik et al., 2006; Vik et al., 2004).

2.5.3.2 Drug and Dosage Regimens

It is known that for many persons one of the biggest hurdles is to manage the complexity of a drug regimen (Botelho & Dudrak, 1992; Berg, Dischler, Wagner, Raja, & Palmer-Shevlin, 1993; Claxton et al., 2001). In an outreach programme in five elderly day centres (n=304) conducted by the Chinese University of Hong Kong together with the Pharmaceuticals Society of Hong Kong (2007), found an association between compliance in medication-taking and the complexity of the drug regimen. Literature draws upon the importance that it is not only the number of medications that contribute to the complexity of the drug regimen but, that the number of doses per day are also an influential factor towards improving compliance in medication-taking (Conn, Taylor, & Kelly, 1991).

Data associated with medication regimens varies. Studies by Brun (1994); Claxton et al. (2001) reported that older persons on a once daily regimen were more compliant than those who required the taking of multiple daily doses (polydosing). In addition, Murray, Birt, Manatunga, and Darnell, (1993) found that there is proof that simplifying drug regimens may potentially improve compliance rates in medication-taking.

Minimising the frequency of dosing is considered to be a strong variable to improve compliance rates in medication-taking. A study undertaken by Schroeder, Fahey, and Ebrahim (2004) claim that medications with once daily dosing, may be preferred to medications requiring multiple daily doses. Equally, another study presented by Saini et al. (2009) reported that minimising the frequency of dosing is

positively associated with compliance in medication-taking. Similarly, Draper and Berman (2008) suggest that any single medication should not be taken more than twice daily. In contrast, Isaac and Tamblyn (1993) found no correlation between medication compliance and the complexity of the drug regimen. Similarly, a study by Pushpangadan and Feely (1998) 'Once a Day is Best: Evidence or Assumption?' reported little evidence to support such a belief.

Fear about medication side effects is another dominant stumbling block. This was confirmed in a survey carried out by Harris Interactive (2005), where a massive 45 percent of the 2,507 adult participants did not take their medication because of concerns about side effects.

2.5.3.3 Polypharmacy

Polypharmacy refers to the use of multiple drugs. The National Service Framework for Older People (2001) defines the term polypharmacy as "being prescribed 4 or more medicines" (p.8). The United States National Council on Patient Information and Education (NCPIE, 2007) reports that older persons aged 75 and older consume a daily average of 7.9 prescribed drugs.

In another study carried out in Ireland it was reported that 86 per cent of older persons were taking a minimum of three medications for one or more chronic conditions. Additionally the majority of Irish older persons (75%) received medication for cardiovascular disease to treat ischaemic heart disease. On the other hand it is interesting to note that the same study reports that anti-hypertensives was the most popular prescribed medication and therefore it was

recorded that such a medication obtained the highest number of prescriptions. Furthermore the study also found that the following drugs in relation to the central nervous system, upper gastro intestinal and musculoskeletal reported to be on the high scale of prescriptions (Naughton, Bennett, & Feely, 2006).

A research study carried out by Gurwitz (2004) highlights that more than 90 per cent of older persons aged 65 and older takes a minimum of one medication per week, 40 per cent take at least five medications, and 12 per cent take ten or more medications per week.

In their studies, Claxton et al. (2001) and Osterberg et al. (2005) reported that polypharmacy had a negative effect on compliance. Polypharmacy is often associated with the older population because older persons are often frail and sensitive to pharmacotherapy. This therefore increases the risk of drug-drug, drug-food and drug-disease interactions. Older persons are particularly prone to polypharmacy because of the changes that occur during the physiological process of ageing. These changes affect the organ and system functions of the body e.g. decreased hepatic and renal function. In turn this may also affect changes in pharmacokinetics (effect of the body on the drug) and pharmacodynamics (effect of the drugs on the body). Therefore, such a situation leads, not infrequently that older persons are at an increased risk of experiencing medication side effects because their bodies are unable to respond and react fast compared to their young counterparts (Mangoni & Jackson, 2004; Milton, Hill-Smith, & Jackson, 2008; Peron & Ruby, 2012; Simonson & Feinberg, 2005).

Although medications are prescribed to treat a condition and therefore medications are necessary to improve health conditions, the use of multiple drugs is associated with an increased risk of poor health outcomes including compliance in medication taking (Steinman & Hanlon, 2010). Substantial studies have reported additional risk factors that are associated with polypharmacy in older persons. These include adverse drug reactions (ADRs), mortality, increased health care costs, premature need for nursing home placements, reduced quality of life, falls and fractures, hospital admissions, length of in-patient hospital stays and cognitive impairment (Boyle, Naganathan, & Cumming, 2010; Campbell, Seymour, & Primrose, 2004; Frazier, 2005; Mangoni et al., 2004; Page & Ruscini, 2006; Rollason & Vogt, 2003). Further risk factors for polypharmacy have been reported. These include multiple health care providers, increased risk of geriatric syndromes (e.g. urinary incontinence) as well as the risk of inappropriate prescribing. Polypharmacy is also associated with a changed level of independence in instrumental, personal and physical activities of daily living (Hanlon et al., 2004; Tierney et al., 1994; Waters et al., 2001).

One might argue that the number of prescribed medications may influence compliance; however, this is not always the case. The following studies (Horne et al., 1999; Patal & Taylor, 2002; Grant, Devita, Singer, & Meigs, 2003) claim that no relationship was found between compliance and the number of medications prescribed. On the contrary, Kulkarni et al. (2006) confirms that in older persons the number of prescribed medications was reported to be a strong variable for non-compliance in medication-taking. This therefore suggests that the higher the

number of prescribed medications, the lower the rate of compliance. Similarly, in a Maltese study carried out by Pizzuto (2010) '*Compliance and medication problems in chronic conditions*' reported that 55 per cent of Maltese older persons have experienced an adverse drug reaction while 56 per cent of the research sample were described as non-compliant when taking their medications. In contrast, Shalansky and Levy (2002) reported that taking few medications was correlated to low compliance in long-term cardiovascular regimens (mean age 61 years).

On the other hand, Mallion et al. (1997) found that older persons who are prescribed multiple medications are more likely to be compliant, as they may be more aware of their condition and medication, resulting in less missed doses. Scicluna (1985) found that older persons are least compliant with suppositories. The reasons given being that suppositories are uncomfortable and difficult to insert.

2.5.3.4 Multiple Health Care Providers

As older persons tend to suffer from multiple conditions, a number of medications may be required to treat such conditions. Due to multiple morbidities an older person might have multiple health care providers, prescribing various medications. This situation further contributes to the complexity of managing the medications. In addition, older persons having multiple health care providers are also at risk of medication errors (Barat et al., 2001; Dunbar-Jacob et al., 2003).

Very often there is a stronger tendency for medications to be added to the patient's treatment rather than for the medications to be reduced or stopped.

Furthermore additional medication may interact with concurrent medications. This scenario leads, not infrequently, to polypharmacy especially if there is no coordination between one health care provider and another. This situation becomes even more challenging in the private health sector when there is often no access to a shared medical file (Abdul, Agilen, Tan, Kugap, & Dhanaraj, 2011; Azoulay, Zargarzadeh, Salahshouri, Oraichi, & Berard, 2005; Warwuch et al., 2008).

2.5.3.5 Inappropriate Prescribing

A study carried out by Hamilton, Gallagher, and O'Mahony (2009) defines the term inappropriate prescribing as: "the use of medicines that pose more risk than benefit, particularly where safer alternatives exist" (9:5.).

Evidence indicates that inappropriate prescribing is highly prevalent with the older population since older persons are prescribed multiple medications. This therefore increases the risk of inappropriate prescribing (Hanlon et al., 2004). Furthermore inappropriate prescribing is described as a common practice in older persons because many a times, the health care provider depends on the information given by the patient and/or the caregiver regarding the medications taken by the patient. Such a situation is becoming an increased health care concern due to the global phenomenon of ageing populations (Hamilton et al., 2009; Spinewine et al., 2007). A study by Willcox, Himmelstein, and Woolhandler (1994) 'Inappropriate drug prescribing for the community dwelling elderly' reported that in the United States, the prevalence of inappropriate prescribing for the community dwelling elderly was 24%. Inappropriate prescribing is negatively associated with an increased risk of morbidity, mortality, adverse drug events and use of health care resources

(Gurwitz et al., 2000; Klarin, Wimo, & Fastbom, 2005; Lau, Kasper, Potter, Lyles, & Bennett, 2005; Lindley, Tully, Paramsothy, & Tallis, 1992; Spinewine et al., 2007).

In attempt to reduce inappropriate prescribing in older persons, Bergman-Evans (2004) and Garcia (2006) puts forward the following suggestions namely: encouraging use of one particular pharmacy, this enables the pharmacist to be in a better position to assess the patient's medication list. Furthermore, the pharmacist may have the opportunity to be aware of any possible mismanagement of the patient's medication. Another suggestion looks at following medication guidelines when treating either acute or chronic conditions that affect the older population; patient education; use of generic drugs; and building on a positive relationship between the patient and the health care provider. All of the above suggestions are possible measures of improving the compliance of older persons in medication-taking.

2.5.3.6 Adverse Drug Reactions (ADRs)

An adverse drug reaction, as defined by the World Health Organisation (WHO, 1972), is a reaction that is "noxious and unintended and which occurs at doses normally used in man for the prophylaxis, diagnosis or therapy of disease or for the restoration, correction or modification of physiological function" (http://www.who.int/medicines/areas/coordination/English_Glossary.pdf).

Many studies claim that adverse drug reactions particularly in older persons are considered to be a common contributing factor leading to hospitalisation. The older

population is at a increased risk of ADRs because older persons are often frail and have an increase sensitivity to pharmacodynamics to several commonly used drugs particularly, those affecting the central nervous system and cardiovascular. In addition the risk for adverse drug reactions in older persons increases in relation to the number of medications being taken. Therefore, attention should be given in order to avoid ADRs since literature acknowledges that most ADRs are predictable and therefore more likely to be avoidable (Cassar, 1991; Hajjar, Cafiero, & Hanlon, 2007; McDonnell & Jacobs, 2002; Routledge, O'Mahony, & Woodhouse, 2003). In their study, Routledge et al. (2003) suggest that the above situation can be accomplished by developing good communication, in such a way, that an "effective therapeutic partnership" (p.123) between the patient and different health care professionals is achieved. Furthermore Peron et al. (2012) highlight that "clinicians often fail to realise that medications can cause or contribute to problems that are common in older adults" (p.2).

Adverse drug reactions are considered to be the fifth leading cause of death in the United States of America (Lazarou, Pomeranz, & Corey, 1998). Many studies highlight that the risk of ADRs are strongly associated with the number of medications taken, and multiple co-morbidities (Cannon, Choi, & Zuniga, 2006; Cassar, 1991; Gray et al., 1999; Hajjar et al., 2007; Hanlon et al., 2006). The most common drugs associated with adverse drug reactions include antibiotics, diuretics, anticoagulants, non-steroidal anti-inflammatory drugs (NSAIDs) and analgesics. Furthermore, the common adverse drug effects include urinary retention, falls, ataxia, postural hypotension, constipation and confusion (Budnitz,

Lovegrove, Shehab, & Richards, 2011; Hajjar et al., 2003; Routledge et al., 2003; Zhang, Holman, Preen, & Brameld, 2007).

2.5.4 Therapy-Related Factors

2.5.4.1 Labelling

Evidence shows that older persons are more likely to suffer from decreased vision, hearing loss and reduced manual dexterity. One of the difficulties associated with poor labelling is that older persons experience difficulty in reading medication labels due to their decreased vision. According to McElroy and MacCallion (1998) around 60% of older persons encounter difficulty in reading medication labels, in particular due to problems with glare and poor eye sight (Park & Jones, 1997; Vik et al., 2004).

Other obstacles encountered by older persons include difficulties following instructions due to the small print and problems distinguishing different medication containers, especially if the printing on the labels fades with use (Murray, Darnell, Weinberger, & Martz, 1986). Therefore, increasing the font size and using pictograms on medicine labels, enabling the reading and easier following of the instructions, are possible measures of improving the compliance of older persons in their medication-taking post-hospitalisation (Dowse & Ehlers, 2005; Murray et al., 1986; Vik et al., 2004).

2.5.4.2 Distinguishing Tablet Colour, Size and Shape

Literature reports that older persons encounter difficulty distinguishing their medications due to the similarity both in colour and shape (McElnay et al., 1998; Park et al., 1997). The researchers have found that older persons experienced most difficulty in distinguishing green and blue tablets, but had less difficulty in distinguishing between red, yellow and pink tablets (Hurd & Blevins, 1984; Hurd & Butkovich, 1986; Murray et al., 1986). Furthermore, older persons may have difficulty to differentiate tablets size and shape; and tablets that are round and small may be difficult to pick up (Green, Mullen, & Stainbrook, 1986; Jinks, Evanson, & Duncan, 1990). In a study carried out by Overgaard, Moller-Sonnergaard, Christrup, Hojsted, and Hansen (2001) it was found that a circular shape was preferred for small tablets whereas oval shape was preferred for medium and larger tablets.

On the other hand, large irregular shaped tablets may be difficult to swallow (Green et al., 1986; Jinks et al., 1990). A study presented by Preston and Morris (2005) reported that in the United Kingdom 11% to 20% of older persons have difficulty in swallowing tablets. To overcome this difficulty Wright (2002) suggests that tablets should be crushed, however this does not solve the problem as it is contra-indicated to crush a number of medications administered by the elderly (Griffith, Griffiths, & Jordan, 2003). Further studies on swallowing of tablets have reported that patients preferred disintegrating tablets over regular tablets.

2.5.4.3 Taste and Colour

Until the mid-1900's the majority of pills and tablets were white and round. The situation began to change in the 1960's when colours were first introduced into the field of pharmaceuticals ([https://www.colormatters.com/ color-symbolism/the-color-of-medications](https://www.colormatters.com/color-symbolism/the-color-of-medications)). Literature reports that the taste (Atkinson, 1974) and colour of the drug affects compliance (Coffield & Buckalew, 1988). For example, a study carried out by Schapira, McClelland, Griffiths, and Newell (1970) reported that patients' anxiety was reduced with green tablets, while depression was decreased with yellow tablets. Cattaneo, Lucchelli, and Filippucci (1970), together with Lucchelli, Cattaneo, and Zattoni (1978) found that blue tablets were more soothing compared to orange tablets. A plausible explanation might be that orange is considered as a stimulating colour. According to Stegemann (2005) red, yellow and light blue are perceived as bright colours while brown, dark blue and pink create tranquility.

McElhatton (1987) reported that the preferred colour for antibiotics was red and black (47%), whilst red and brown was the chosen colour for laxatives (32%). Furthermore, Overgaard et al. (2001) found that white is the favourite colour for tablets and capsules, while purple tablets and brown capsules are less favourite colours. The same study also found that patients preferred gelatin capsules instead of tablets.

2.5.4.4 Packaging

Evidence shows that drug packaging may be yet another influence on compliance in medication-taking post-hospitalisation. While not all older persons taking medication encounter difficulty with opening their drug container/packaging, a substantial number do. Older persons who experience difficulty in opening child-resistant containers, blister packs and bubble packs are more likely to be non-compliant (Blenkiron, 1996; Barat et al., 2001; Jinks et al., 1990; Ryan & Chambers, 2000).

Studies presented by Atkin, Finnegan, Ogle, and Shenfield (1994), together with Nikolaus, Kruse, Bach, Specht-Leible, Oster, and Schlierf (1996) has indicated that older persons encountered difficulty opening their drug containers particularly, child-proof containers. Similarly, Thwaites (1999) reported that one third of older persons, over the age of 60 years and residing in the community, were unable to open child-resistant containers. Consequently 9% stopped their medication, whilst the remaining 91% left the container open, changed the container or found an alternative way to take their medication.

A study presented by Bevil (1991) found that 28% of older persons residing in the community left their medication bottle open, to be able to take their medication as required. Moreover, during a cross-sectional study carried out in Sweden, by Beckman et al. (2005) on 492 older persons (77+) residing in the community, it was noted that 14.6% encountered difficulty when trying to open a flip-flop medicine container.

In contrast, Botelho et al. (1992) found no correlation between compliance in medication-taking and opening of drug containers. A study carried out by Nikon (1996) which focused on the physical ability of the older person to open medication bottles, showed that older persons experienced difficulty taking their medications particularly when those older persons had a visual impairment, decreased manual dexterity and cognitive impairment.

One should also consider the fact that older persons usually identify their tablets by size and colour; this is greatly hindered if the container is not transparent (Davidson, 1973). The same study confirmed that older persons preferred transparent glass and screw top bottles. On the other hand, such a preference would still not solve the identification problem for older persons who are visually impaired or the access problem for those who have decreased manual dexterity (Nikolaus et al., 1996).

2.5.5 Patient-Related Factors

Patient reported reasons for non-compliance in medication-taking are important factors in providing a better understanding as to why patients stop or mismanage their medications. Although forgetfulness is a frequently reported reason, (Corlett, 1996; NCPIE, 2007; Rajaei-Dehkordi et al., 1997) some patients intentionally skip or take their medications incorrectly (Osterberg et al., 2005; Rajaei-Dehkordi et al., 1997). Numerous studies (DiMatteo, 2004b; Mann et al., 2007; Osterberg et al., 2005; Senior et al., 2004; Ulrik et al., 2006; Vermeire et al., 2001; Vik et al., 2004; WHO, 2003) reported other essential factors for non-compliance in medication-taking related to the patient such as fear of side effects; lack of information about

the diagnosis and medication; the patient's perception, expectations, health beliefs, attitudes; uncertainty about the need for medication; dislike of taking long-term medications and perceived fear of being dependent on the medication. Other studies presented by these researchers, (Conrad, 1985; Kaljee & Beardsley, 1992) reported that patients' desire to gain control over their medical condition and medication regimens are also important factors that are associated with the risk of non-compliance with their medication-taking.

2.6 Methods to Assess Compliance In Medication-Taking

Literature acknowledges that although several measures are available to assess compliance in medication-taking, accurate measurements still remains problematic. Therefore, there is no single measurement of patient compliance to medications that can be considered as the gold standard (Osterberg et al., 2005; Vermeire et al., 2001; Vik et al., 2004). There are both direct and indirect methods of measuring patients' compliance in medication-taking. It is imperative to note that both these methods have their limitations. Additionally, the recommended approach put forward in literature, in order to assess compliance in medication-taking is by adopting a combination of both direct and indirect methods (Andrews & Friedland, 2000; Vermeire et al., 2001; Vik et al., 2004; Wagner 2002).

2.6.1 Direct Methods

Direct methods of assessing compliance in medication-taking include blood-level monitoring and urine assay for the measurement of drug metabolites or marker compound. Although this is an accurate measure of the concentration of

medication in body fluids, collecting blood or urine samples, can be expensive and inconvenient for the patients. Furthermore, by means of this measure, only a limited number of medications can be monitored and does not take into consideration the pharmacokinetic factors of the medication, thus making it difficult to correlate drug levels in blood or urine sample with compliance in medication-taking (Vermeire et al., 2001; Vik et al., 2004). An important factor of direct methods to identify non-compliance in medication-taking also depends on the accuracy of the test and the degree to which the patient was non-compliant before the blood or urine sample was administered (Nichols-English & Poirier, 2000).

2.6.2 Indirect Methods

Indirect methods of assessing compliance in medication-taking are more frequently reported in literature. These include pill counts, patient interviews, diaries, electronic monitoring and refill records.

2.6.2.1 Pill Counts

This method provides an objective measure of the quantity of drug taken over a given period of time. Such a method is employed by having a health care professional who would count the remaining tablets from a previously known amount of dispensed medication. The difference in the result will determine the number of drugs not taken. There are several disadvantages associated with the use of this method (Cramer, 1995; Vik et al. 2004). A major drawback with this method is that it is unable to determine whether the missing drugs were taken as prescribed with regards to time and dosage and whether the drug was consumed.

Another disadvantage includes that this method is time consuming and assumes that tablets not found in the container, would have been consumed. A further limitation when using this method to assess compliance in medication-taking, is that patients would be fully aware of being closely monitored and therefore might discard any amount of their medication and hence mislead the researcher (Cramer, 1995; Vik et al. 2004).

2.6.2.2 Patient Interviews

This method for measuring compliance in medication-taking involves the health care provider asking the patient to recall their medication taking. One drawback of this method is that it is highly dependent on the patient's response which may be too subjective (Owens et al., 2003). Wagner (2002) highlights that such a method, is associated with patient overestimations of compliance in medication-taking. A plausible reason for this overestimation might be that patients may tell their health care providers what they believe to be correct (Cramer, 1995). Patients may think that they are in fact compliant with their medication-taking but in reality will not be, due to several factors, one of which may be lack of understanding of the drug regimen. Although such a method relies solely on the patient's response and may have its limitations, it does however provide a rough estimate to the health care providers of their patients' compliance in medication-taking (Andrews et al., 2000).

2.6.2.3 Electronic Monitoring

In recent years, electronic devices were introduced. These were a useful attempt to measure patients' compliance in medication-taking. The first electronic pill

counter device or the Medication Event Monitoring System (MEMS) was introduced in Switzerland in 1987. MEMS comes in various types of packaging such as inhalers and blister packages. The aim of this device is to record the medication intake by the patient. An advantage associated with MEMS is the ability of identifying a daily dosing frequency and dosing pattern. Such a system consists of a medication bottle cap with an internal microchip processor which accurately records the time and date of each opening. Such data can then be transferred to a computer and the data collected can be analysed and presented in graphical illustrations such as histograms (Dusing et al., 2001). A limitation in using this system is that the device opening may not reflect the reality of compliance. Thus one is unable to know if the medication was taken or not. Using electronic devices as a measurement of compliance is not infallible, however a combination of methods may provide a better indication and a realistic outcome of compliance in medication-taking (Backes & Schentag, 1991; Cramer 1995).

2.7 Strategies to Improve Compliance In Medication-Taking

There is no consensus regarding a particular strategy to improve compliance in medication-taking in older persons, however evidence shows that a variety of strategies have been employed with varying success. Literature acknowledges that what appears to be the most successful and effective approach is not based on a single strategy. Multiple interventions work best, particularly simplified dosing, self-monitoring and direct involvement of a pharmacist.

Literature refers to several compliance aids that can assist older persons particularly those who have problems with managing their medication. However to date there is no particular aid which is considered to be superior to others.

2.7.1 Calendars

Calendars are helpful for keeping track of medication schedules and may act as a reminder to take the medication. A calendar may be hung near the place where the medication is taken and can be marked every time a medication is taken. There are several advantages of using a calendar. They are considered to be an inexpensive aid and commonly found and medications may remain stored in their original packaging and therefore less likely to be mixed up with other tablets. On the other hand, a disadvantage highlighted by Meyer (1993) in using a calendar, is that, due to dementia the older person may experience difficulty to mark the calendar each time the medication is taken.

2.7.2 Different Medication Storage Boxes

These medication storage boxes (commonly referred to as the seven day pill box) can now be found in a various formats due to the improvements over the years. Such pill boxes can be found in manual, automated and electronic designs.

2.7.2.1 Manual Pill Boxes

These medication storage boxes are containers with compartments where medications may be stored. This pill box has 7 compartments, one compartment for each day of the week. Martin (1984) describes the manual pill box as an

“apparatus for accurately selecting, storing and dispensing multiple varieties of pills” (<http://www.google.co.uk/patents?id=S6 wxAAAAEBAJ&dq=David+c+martin>). Furthermore, Cappuccilli (1977) explains that “the intervention comprises a pill tray which may be conveniently and economically fabricated from injection moulded plastic”(<http://www.google.co.uk/patents?id=sZxTAAAAEBAJ&dq=Joseph+Anthony+Cappuccilli>). An advantage of using a 7 day pill box is that the medication is only required to be prepared once a week. On the other hand, a disadvantage of preparing the medication box once weekly is that a mistake may occur seven times.

Several other advantages attached to this compliance aid includes that it is commonly found, compact and light to carry. Other advantages include that if a dose is forgotten; the pill box is clear and may therefore act as a reminder to take the medication. In addition, it can act as guidance to assist the patient with medication self-administration, in an orderly manner. Such a compliance aid is inexpensive and less difficult to open when compared to the child-resistant containers. Also, one may find pill boxes with Braille embossed on the compartments. This is important and highly beneficial in the visually impaired patient. A disadvantage with the use of this aid is that the medications are removed from their original packaging and therefore the medications, may be misplaced should the medication storage box be accidentally dropped.

Martin (1984) claims that the pill boxes may also have colours attached to every pill compartment to indicate the different times of the day that the medication is scheduled to be taken. The author suggests the following example: For example

morning would be identified by using red, the colour yellow would be suitable for noon, the evening would be associated with the colour blue and black will be used for the night. Such a technique would be suitable if the older person is unable to read or write. Another recommended characteristic in relation to the pill boxes is the inclusion of pictograms representing morning, noon, evening and night respectively. This may further contribute to improve compliance in medication-taking post-hospitalisation.

During a cross-sectional survey conducted by Litternberg, MacLean, and Hurowitz (2006) it was observed that different medication aids were used. The most popular medications aids used were the seven-day week pill boxes, followed by linking medications with a daily cue such as a meal or bedtime and putting the medications in a specific place such as near the television set. A further observation in this study showed that patients who used organisers and cues had better compliance in their medication-taking than those patients who did not use any aids.

2.7.2.2 Electronic Pill Boxes

In their research study, Martin, Falkner, Pogemiller, and Coons (2008) claim that there are several modern devices which are beneficial with regards to compliance in medication-taking as they help the patient to remember to take the medication as recommended. The researchers make reference to the 'Pill Reminder' device. Such a device is described as "compact, affordable, and easy to use" (p.5). This device works by allowing the patient to place the medications in every individual compartments which will unlock according to the programme dispensing times.

In the same research study, the researchers describe another useful gadget referred to the 'E-Pill Vibrating Countdown Timer and Alarm'. They explain that such a gadget could compliment the Pill Reminder which acts as a portable alarm clock which reminds the patient when to take the medications. Such a device can be worn around the neck and is useful particularly for older persons suffering from hearing impairment. This is because this device has a vibration function which vibrates together with the sounding alarm to ensure that the patient is fully aware to take the required medication.

The 'E-Pill' is another gadget mentioned throughout the same study. Such a gadget also provides an audible alarm together with a count down timer. This device will remind the patient to take the medications well in advance. A real time display is visually seen as part of the device.

2.7.3 Other Available Dispensing Devices

Pill crushers, pill punches and pill splitters are other available dispensing devices which enable the patient to take the medications and as a result, it may enhance compliance in medication-taking.

2.7.3.1 Pill Crushers

Pill Crushers are ideal for crushing uncoated tablets into powder. Such a gadget is useful when the medication is required to be taken with food or drink. Furthermore, this technique is beneficial particularly for older persons who may experience

difficulties in swallowing. An advantage associated with the use of this technique is that an older person is provided with an alternative method to take the medications and therefore it is a possible measure that promotes compliance in medication-taking post-hospitalisation.

2.7.3.2 Pill Punches

Pill Punches are easy to use devices which help the patient to remove the tablets from the various packaging, which may be difficult to do particularly for older persons who have a physical impairment or decreased manual dexterity. An example of such a device is the 'Poppet Pill Remover'. This device functions by removing the tablets from their original packaging and enables the patient to place and organise their own medications accordingly (www.disabledaid.org.uk/products.asp?recnumber=147#).

2.7.3.3 Pill Splitter

The Pill Splitter enables the patient to equally divide a tablet. Thus, such a method refrains from creating a mess and inaccuracy when it comes to split a tablet into two. This device is compact and this makes it convenient to carry around. In addition, such a device is easy and safe to use and therefore it eliminates the risk for the patient to be injured when dividing tablets, because the cutting tool is built in the device and therefore the patient would be at a greater risk if one had to use an ordinary knife to divide the tablets. Should a patient suffer from decreased manual dexterity, an advantage in the use of this technique is that it facilitates the dividing of the tablet accurately without losing any doses, such as, on the floor.

The use of this technique may further encourage compliance in medication-taking post-hospitalisation.

2.8 The Role of the Clinical Pharmacist

“Pharmacists are society’s experts on drugs” (Barber, Smith, & Anderson, 1994, p.153). Traditionally, the role of the pharmacist consisted mainly of preparing a mixture and dispensing prescriptions. Over the past three decades their role has expanded in such a way that they are responsible to:

- i) avoid interactions (food/drug interactions);
- ii) identify adverse reactions;
- iii) monitor and review drug treatment;
- iv) educate patients and caregivers; (Barber et al., 1994; Osterberg et al., 2005; Steinman et al., 2010).

The above mentioned roles positively effects patients’ compliance in medication-taking. It is known that patients are unlikely to admit to the doctor that they are non-compliant. In such situations, compliance rates are therefore difficult to measure and obtain because of the increased probability that the patient will not tell the truth (Carter, Taylor, & Levenson, 2003). Furthermore, such a situation often makes it difficult for the doctor to recognise non-compliance unless being informed (Osterberg et al., 2005; Steinman et al., 2010). To counteract such a situation, the pharmacist can be a key player in improving compliance in medication-taking by assessing, counselling and intervening as required. Such skills are also key components in ensuring that the patient’s quality of care is safeguarded. Furthermore, pharmacists are in an ideal position because they will

be able to discuss with the doctor and offer suggestions such as simplifying drug regimen and prescribing cost effective medication (Barber et al., 1994; Osterberg et al., 2005; Simpson, 2006; Steinman et al., 2010). In fact Mason (1989) suggests that the pharmacist should be “a drug therapy specialist as well as an information delivery specialist” (p.259). A study carried out by Lipton et al. (1994) reported that older persons, who received pharmacist counselling, prior to discharge from hospital, improved their compliance in medication-taking by 43%.

2.9 The Pharmacy of Your Choice (POYC) Scheme

The Pharmacy of Your Choice (POYC) scheme was introduced in Malta in 2007. The primary aim of the POYC scheme was to reduce the long queues at the Government Health Centres Dispensaries. This scheme covers patients suffering from a single chronic condition or multiple chronic conditions. This will entail patients to have access to free medicines irrespective of their financial situation and are also provided with the facility to register and collect their medications from a pharmacy chosen by them. The eligible chronic conditions are listed under the fifth schedule of the Social Security Act (Cap. 318) (See Appendix 1 for the list of chronic conditions). Patients suffering from chronic conditions fall under Schedule V where patients are given a yellow card on which the medications that they are entitled to will be printed on the card. On the other hand, those patients experiencing financial constraints fall under Schedule II where patients will be entitled for a pink card. The pink card will include a list of medications that fall within this category (Pink Card) (Ministry for Health, 2013b).

Eligible patients can benefit from collecting their free medicines from a pharmacy of their choice within their locality instead of queuing at government health centres or at the main hospital pharmacy. Besides reducing on the waiting time for patients, who formerly had to queue for long hours to collect their medicines, the POYC scheme also aims to offer a personalised service and to reduce wastage. It is calculated that around 140,000 persons are entitled to receive free medicines (DOI, 2009). There are currently 213 community pharmacies registered with the scheme across Malta and Gozo. It is noted that a total of 113,781 persons are registered under the POYC scheme. The total expenditure calculated in 2012, to run the POYC scheme amounted to €4.2 million. On the other hand, it is estimated that the costs of the POYC scheme from January 2013 to July 2013 added up to €4 million (The Sunday Times of Malta, 2013).

2.10 Social Work Practice with Older Persons

2.10.1 What is Social Work?

The International Federation of Social Workers (IFSW) in the General Meeting in Montreal, July 2000 puts forward the following international definition of the social work profession:

The social work profession promotes social change, problem solving in human relationships and the empowerment and liberation of people to enhance well-being. Utilising theories of human behaviour and social systems, social work intervenes at the points where people interact with their environments. Principles of human rights and social justice are fundamental to social work.

(<http://ifsw.org/policies/definition-of-social-work/>)

In their work: *The Social Work Experience: An Introduction to Social Work and Social Welfare*, Suppes and Cressey Wells, (2003) highlights that:

...most of us have a pretty good idea of what we what we expect from a doctor or a teacher. For social work, the role expectations are not quite as clearly understood by the general public. Perhaps this is because there are so many professional roles in social work. The number and diversity of social work roles provide opportunity for a great deal of creativity in practice.

(Suppes et al., 2003, p.8)

“Social work in its various forms addresses the multiple, complex transactions between people and their environment, [using] a variety of skills, techniques, and activities consistent with its holistic focus on persons and their environments” (www.ifsw.org). In the practice of social work, social workers function at a correlation of both the personal and the social level. At its core lays the concept of knowledge, values and skills on which a social worker bases ones approach namely the generalist approach and/or the specialist approach.

2.10.2 Social work in a rehabilitation hospital: The role and the skills of the social worker working within an inter-professional team practice.

“The job of social work is to mediate the process through which the individual and... society reach out for each other through mutual need self-fulfilment” (Compton & Galaway, 1999, p.3). The role of the social worker working in an inter-professional team within a rehabilitation hospital plays an important part because the social worker primarily focuses on the social well-being of the older person. Therefore if such a profession is excluded from the inter-professional team, then

any arising issues or difficulties regarding the social aspect of the older person “who may not be able to get their voice heard by other professionals” (Littlechild, 2007, p.157) will be missed. Consequently, if such arising issues will not be tackled they might impinge on the patient’s quality of life and quality of care.

Way, Jones, & Busing, (2000) defines inter-professional practice as a “collaborative process for communication and decision making that enables the separate and shared knowledge and skills of care providers to synergistically influence the client/patient care provided” (<http://www.ocfp.on.ca/english/ocfp/communications/publications/default.asp?s=1>). Although there might be an element of overlap between the different professions, they compliment and strengthen one another. Moreover Norrefalk (2003) emphasises that “teamwork is one of the most fundamental factors in rehabilitation medicine” (p.100). This therefore recognise the need for different professions, to work together adopting a patient centred approach, so that the older person’s needs are identified and dealt with accordingly.

The inter-professional team at the Rehabilitation Hospital Karin Grech is composed of Consultant Geriatricians; Doctors; Ward Managers; Nurses; Occupational Therapists; Physiotherapists; Speech Language Pathologists; Pharmacists; and Social Workers.

A study undertaken by Cree and Davis (2007) ‘*Social Work: Voices from the Inside*’ which looked at examining the perspectives and experiences of social workers working with older persons highlight that “good social work with older

people is about listening, genuineness and respect” (p.133). In another research study which focused on ‘*Service users’ views of specialist palliative care social work*’, suggests that the following qualities namely kindness, respect, compassion, warmth, caring, sensitivity, thoughtfulness and empathy are all essential that a social worker should be equipped with. Furthermore, the service users who participated in this study described these qualities as inborn qualities (Beresford, Adshead, & Croft, 2006).

It is significant that besides the above mentioned qualities, social workers require to be knowledgeable of other skills which are considered pertinent when working with older persons particularly in a rehabilitation hospital. Baer and Federico (1978, as cited in Johnson & Yanca, 2004) divided the skills that social workers need when working with older persons into four components namely: (1) information gathering and assessment; (2) the development and use of the professional self; (3) practice activities with individuals, groups and communities; and (4) evaluation. Hence, social workers may come across different clients with diverse needs and this might result in a number of concerns for both the social worker and the client in order to draw the most suitable care plan.

Working in the field of gerontology, it is expected that there will be constant change, unpredictability or vulnerability. As a result social workers require to work and to utilise care management skills effectively in the client’s best interest and also according to the client’s needs. Therefore this means that the skills required by social workers for care management are not only specific but there is also the need of a variety of generalist social work skills. For this reason, a social worker

needs assessment skills, based on a holistic approach aimed at the person's needs. Furthermore, the social worker must be skilled to be able to balance or mediate between competing interests that might occur within the client's environment. For example social worker encounters family dynamics and/or family factions with family members.

In addition, other skills required when working with older persons include: relationship skills such as paraphrasing and clarifying; problem-solving skills such as assessing and planning; and political skills such as advocating and bargaining. All the above mentioned skills structure the foundation skills for good social work practice (Johnson et al., 2004).

2.10.3 Values in Social Work

In social work practice values are considered to be “guides to behaviour, growing out of personal experiences, modified as experiences accumulate, and evolving in nature” (Johnson et al., 2004, p.45).

Social workers are likely to deal with core tasks related to a considerable change or the need to modify individual's constant needs. Therefore, a strong core social work value-base for the work to be delivered effectively to older persons is important. Hence, social workers ought to acquire values based on “sensitive communication, moving at the individual's pace, starting where the client is, supporting the person through crisis, challenging poor practice, engaging with the individual's biography and promoting strengths and resilience” (<http://www.scotland.gov.uk>)

d.gov.uk/Publications/2005/12/16104017/ 4018). According to Biestek (1957) the required social work values when working with older persons include:

- i) *Individualisation*: Each and every individual is a unique and specific person with his/her own unique characteristics. Therefore, as much as possible the clients are given a choice of services that could be supportive for his/her care. Together with the client, the social worker will try and draw up the most suitable care tailor-made to meet the individual needs of the older person.

- ii) *Client Self-Determination*: The client's right and freedom to make their own choices and decisions. It is vital that social workers work together with older persons on empowering and acknowledging the client's potential and abilities rather than under estimating the older persons' potential and abilities.

- iii) *Purposeful Expression of Feeling*: The recognition of the client's need to express his/her feelings freely. It is important that social workers remain sensitive to their feelings and do not under estimate the feelings expressed by the client.

- iv) *Controlled Emotional Involvement*: The social worker is required to express empathy and be sensitive towards the client's feelings. However, a professional stand of the social worker is required, in order not to get carried away with his/her own emotions. Not being objective

- v) *Acceptance*: Perceiving and dealing with the client as s/he really is. It is vital that when working with older persons the social worker works at the client's pace and accepts any decision taken by the older person, even, if such a decision is against the social worker's advice.

- vi) *Non-Judgemental Attitude*: An essential quality that the social worker needs to give special importance and works on in order to avoid as much as possible any unnecessary judgements on the client. Understanding the type of illness that the older person is experiencing, helps the social worker not be judgemental towards the client and to look beyond the illness.

- vii) *Confidentiality*: The protection of secret information concerning the client which is disclosed in the professional relationship. It is important to note that there are situations when there is breach of confidentiality, e.g. harm to self and/or harm to others. Therefore it is essential that such a term is well explained to the client and also ensuring that it is understood by the client

(Biestek, 1957)

2.10.4 Knowledge in Social Work

Working with the individual entails knowledge “about people and their social system” (Johnson et al. 2004, p.41). The approach a social worker takes when working with older persons is based on the fundamental concept of blending knowledge, values and skills into one’s practice. Acquired knowledge helps social workers understand the functioning of older persons within the existing social situations and work according to the client’s needs.

Older people have their own individual needs, and should not be categorised as a homogenous group with their own bag of needs. When working with older persons, social workers need to attain an understanding of the larger systems surrounding the client. This is important because it will help the social worker to gain a better perspective of the client and the client’s situation.

The social worker will need to obtain plenty of knowledge concerning the older person’s living arrangements. Moreover, it would be vital if the social worker gathers information and identify caregivers who would be willing to support and participate in the older person’s caring process. Furthermore it is helpful if the social worker obtains information and understanding of other social systems such as neighbours and friends. This is because they could also be involved in the caring process and can be engaged as a supportive network towards the older person. To obtain such information, the social worker together with the older person might make use of an ecomap. By drawing an ecomap the client feels more involved and may help and empower the older person with regards to future care plans.

There is a great deal of specific knowledge related to older persons which a social worker requires. Social workers need to acquire biological and physiological information in order to obtain knowledge about the client's physical aging process. Another important aspect would be that the social worker has a good understanding of the pathological aspects. Such example could be in obtaining an understanding in relation to the mobility and functioning in the activities of daily living (ADLs) of the older person. Hence, it would be vital to obtain specialised knowledge in the field of physiotherapy and occupational therapy.

Furthermore, social workers need to keep themselves informed of the different services available in Malta such as the Meals on Wheels service. This is because the social worker will bridge gaps to link the older person with the community services, by providing all the necessary information and resources which may be of great benefit to the older person. Maintaining a good contact with other social workers from different fields and other professionals is of vital importance, in order, to maximise the benefits in the best interest of the client. Obtaining knowledge from different theories (e.g. The Health Belief Model and The Transtheoretical Model) contributes to further increase the social worker's knowledge. Other useful knowledge includes, the sociological knowledge related to retirement, knowledge of family composition and other various social problems affecting older persons such as ageism. Furthermore, it is essential that a social worker is equipped with generalist knowledge in situations such as dealing with conflicts that might take place between the older person and the caregiver.

2.11 Community Services for Older Persons

2.11.1 Home Care Help

Introduced in July 1988, the aim of this service is to provide a number of hours per week to carry out light domestic work to support older persons in their own home to help them as much as possible, to maintain their independence and to continue living in their own home. The number of hours offered per week depends on the needs of the older person. Therefore each application is discussed individually and the service is provided accordingly. This service suggests that the need for institutionalisation is delayed. By providing the support required to older persons in their own home, this service also aims at providing respite and support to informal caregivers. Persons receiving the service are required to pay €2.33 per week for a single person and €3.49 for more than one person living in the same household. According to the statistical data, in 2011, there were 3539 service users (60+) benefiting from the service (Ministry for Health, 2013c).

2.11.2 Handyman Service

Established in 1989, the aim of this service is to enable older persons to continue living independently in their own homes for as long as it is possible, whilst, receiving the required support to be able to maintain their house. This service offers a vast range of maintenance services such as plumbing, transport of items and electricity repairs. Providing such a service prolongs the need for older persons to resort to institutionalisation. Persons applying for such a service and are holders of the pink medication card or the special ID card issued by the

National Commission for Disabled Persons are eligible for this service free of charge. On the other hand, persons who would like to apply for this service but do not have in possession any of the above mentioned documents, are still eligible to apply, but will be required to pay a nominal fee according to the service rendered. Statistics show that in 2011, there were 1472 service users (60+) who applied for such a service, an increase of 53 persons over the previous year (Ministry for Health, 2013d).

2.11.3 Telecare Service

Created in 1991, the objective of this service is to provide reassurance to older persons especially those living alone, that in case of emergency, their informal caregivers are only a phone call away. Furthermore, this service also aims to provide peace of mind for the informal caregivers who in turn could leave their older family members alone at home whilst they are at work since they are aware that they are only a phone call away. The telecare service provides a 24 hour service. This service consists of a special telephone set which is connected to the telecare centre from which calls are received and assisted together with a pendant. The pendant is highly encouraged to be worn indoors so that in case of emergency, the service user will be able to press the button on the pendant or the large button which is found on the telecare set. Once a call has been received at the telecare centre, the telephone operators will contact family members or other departments such as an ambulance according to the client's needs. By providing such a service, it helps older persons to continue living in their own home independently without resorting to institutionalisation. The service is free of charge as long as the applicant fulfils the eligible criteria along with the required

documents. On the other hand, if the applicant does not satisfy the eligible criteria, one will need to pay a monthly nominal fee between €2.33 to €3.10. Statistical data collected until mid-October 2012 show that there were 8780 service users (60+) who applied for such a service, a decrease of 66 persons over the previous year (Ministry for Health, 2013e).

In November 2013, the **Telecare Plus** service has been launched. Such a service includes additional features to the current telecare service. These features include reminders to take medicine, a panic button, and 'I'm OK' button. This service costs €4.00 per month. On the other hand, service users who would like to remain on the current telecare service may continue doing so at no additional cost (<https://www.gov.mt/en/Government/Press%20Releases/Pages/2013/November/20/pr2588.aspx>).

2.11.4 Telephone Rebate Service

Telephone rebate service helps older persons who are means tested to benefit from a rebate on such a service. Once the older person fulfils the eligible criteria, to start benefitting from this service, the older person will be required to pay a yearly telephone rent of €14.95 instead of €71.70. Statistics show that in 2011, there were 4653 older persons who applied for this service, a decrease of 355 applicants over the previous year (Ministry for Health, 2013f).

2.11.5 Day Centre

There are currently twenty day centres across Malta. The first day centre was inaugurated in Żejtun in 1995. The aim of such a service is to enable older persons especially those living alone to socialise and participate in the running of the day centre activities. These centres offer a variety of activities which include occupational therapy, physiotherapy, outdoor activities and educational talks. This service also aims at ensuring that older persons continue living independently in their own homes, for as long as it is possible. Providing such a service acts as a respite and support to informal caregivers. Persons attending the day centre are required to pay between €2.33 and €5.82 per month. The payment varies as this depends according to the number of visits made to the day centre. According to the statistical data gathered until January 2013, there were 1408 service users (60+) registered for one of the twenty day centres around Malta (Ministry for Health, 2013h).

2.11.6 Incontinence Service

The aim of this service is to provide the supply of subsidised nappies to help older persons and their families who experience incontinence problems to alleviate some of the financial burden that such a service would incur. Furthermore such a service helps to provide the support required by older persons in order to continue living within their own home. Persons eligible to apply for such a service include those persons who are in possession of the special identity card issued by the National Commission for Disabled Persons and older persons (60+). Older

persons applying for the service are given a green card which is valid for two years where they will be able to collect their nappies at a subsidised cost. Data collected in 2011 indicate that there were 2524 service users (60+) registered for this service, an increase of 55 persons over the previous year (Ministry for Health, 2013i).

2.11.7 Meals on Wheels

Launched in 1991, the purpose of this service was created to support older persons (60+) especially those living alone and people with disability who are unable to prepare their own meal. The Maltese Cross Corps which is a non-governmental organisation (NGO) in collaboration with the Department for the Elderly and Community Care provide a healthy meal to these individuals. The meals are prepared at the kitchen of St. Vincent de Paule Residence. Each meal costs €2.213 and it is delivered daily between 8:00a.m. and 12:00p.m. In 2013, in commemoration of the International Day of Older Persons, the Parliamentary Secretary for the Care of the Elderly highlighted that around 300 meals are delivered daily. On the other hand, there are 214 persons waiting to start benefitting from such a service. Statistics show that until the end of October 2012, 68,145 meals were reported to be handed out. Meanwhile, between January 2013 and September 2013, the Maltese Cross Corps distributed 71,000 meals. These statistics indicate that over the previous year there was an increase in the number of meals delivered and the demand for the service is increasing (Ministry for Health, 2013j).

2.11.8 The Malta Memorial District Nursing Association

In 1990 the Malta Memorial District Nursing Association (M.M.D.N.A), which is a non-profit making organisation, entered into an agreement with the Government of Malta to start offering community nursing services. Such a service is doable by conducting domiciliary visits which are free of charge. These home visits are carried out between 8.00am to 1.00pm and 4.00pm to 7.00pm. This is a service beneficial both for older persons and for their informal care givers. This is because, many a times, caregivers are unable to provide the care required by the older person such as bathing, medication administration and dressing of wounds. This service enables older persons to continue living at their own home whilst at the same time being cared for as required (<http://www.mmdna.com/page2.html>).

2.11.9 Night Shelter

There are currently three night shelters across Malta. The first night shelter was opened in 2010 as a pilot project in collaboration with the Jesus of Nazareth Sisters in Żejtun. Over the following two years, another two night shelters offering an identical service were inaugurated. The second night shelter was opened in 2011 in Mellieħa which is situated within the old people's home. Furthermore, the third night shelter was inaugurated in 2012 in Luqa which forms part of St. Vincent de Paule Residence. This service was created for those older persons, especially those who live alone, who for one reason or another feel insecure to sleep at night alone in their own home. Providing such a service prolongs the need for older persons to resort to institutionalisation. Also, it offers peace of mind to the

caregivers that their loved ones are safe and cared for. Persons applying for such a service need to be older persons, independent and do not require any medical attention. Persons making use of this service are required to pay €2.00 per night. The opening hours of the night shelters in winter are from 5.00p.m. till 8.00a.m. and in summer from 7.00p.m. till 8.00a.m. (Ministry of Health, 2013k).

2.11.10 Respite Service

Respite service is only offered at St. Vincent de Paule Residence in Luqa. This purpose of this service is to provide support and relief to the older persons' care givers for a maximum of two weeks unless further in-patient care will be required however this depends solely on an individual basis. Such a service is offered at no cost and applicants may avail themselves of this service three times a year. The informal care givers will mainly benefit from this service by having a break from the activities of daily living required by the older person, whilst at the same time this service offers peace of mind to the care givers that their loved ones are being well cared for. On the other hand older persons themselves will also benefit given the appropriate treatment. There are currently seven beds allocated to this service (Ministry for Health, 2013l).

2.12 Theories in Health Behaviour

Patient compliance can be seen as a health behaviour which can be examined using various behavioural models. In fact, all the potential predictors of medication non-compliance mentioned throughout this review, are consistent with some of the leading theories in health behaviour change with particular reference to the most

quoted theories namely the Health Belief Model (HBM) (Becker, 1974; Rosenstock, 1974b; Rosenstock, Strecher, & Becker, 1988) and the TransTheoretical Model (TTM) (Prochaska & DiClemente, 1982; Prochaska & Velicer, 1997).

During the past 25 years there has been an ongoing development of several theories such as Cognitive Theories, Communicative Theory and Biomedical Theory (Leventhal & Cameron, 1987) and models such as The TransTheoretical Model (Prochaska et al., 1982; Prochaska et al., 1997) in an attempt to understand and explain behaviour related and unrelated to health. For this review, the researcher aims at looking at the cognitive theories with particular emphasis to the Health Belief Model. Cognitive theories have been chosen for this review because they have been extensively used in studying compliance in medication-taking. The main theories pertaining to the cognitive theories are the Health Belief Model, the Protection Motivation Theory, the Theory of Planned Behaviour and the Social Cognitive Theory (Ajzen & Fishbein, 1980; Bandura & Simon, 1977; Becker & Maiman, 1975; Rogers & Prentice-Dunn, 1997). On the other hand, the TransTheoretical Model has also been chosen for this study because it is a biopsychosocial model that strives to promote change in health behaviour, focuses on intentional change and on the individual's decision making (Prochaska et al., 1982; Prochaska et al , 1997).

2.12.1 The Health Belief Model

The Health Belief Model was created in the 1950s by a group of four social psychologists Hochbaum, Leventhal, Kegeles and Rosenstock who worked for the United States Public Health Service in an attempt to understand “the widespread failure of people to accept disease preventives or screening tests for the early detection of asymptomatic disease” (Rosenstock, 1974a, p.328; Rosenstock, 1974b). Later on, the Health Belief Model was adapted in such a way to be able to explore and understand the behaviour of patients with acute and chronic illnesses, and compliance with medical treatments (Kirscht, 1974). Further amendments to the model were carried out to predict more general health behaviours. Literature reports countless studies which illustrate that the Health Belief Model has been applied to a wide variety of problem behaviours, such as: screening for tuberculosis (Hochbaum, 1958); polio vaccination (Rosenstock, Derryberry & Carriger, 1959); smoking cessation (Aho, 1979; Weinberger, Green & Mamlin, 1981) and influenza immunization (Aho, 1979; Leventhal, Hochbaum & Rosenstock, 1960).

The Health Belief Model draws upon the psychological and behavioural theory such that, the two main constructs of health-related behaviour, focuses on the desire to avoid illness or if unwell to get well and the belief that a particular health behaviour or action will prevent or cure the illness. Such a situation, many a times depends entirely on the individuals readiness to act in such a way that would reduce the severity of their condition (Maiman & Becker, 1974). However, the latter is greatly dependent on the individual's attitudes, norms, beliefs and perceptions of the perceived benefits and risks in relation to health behaviour.

The Health Belief Model is composed of six constructs that contribute to a person's compliance in medication-taking. The model suggests that attempts in understanding all six constructs, positively influence patient's compliance in medication-taking. The first four constructs were developed as part of the original model. Eventually, another two constructs were added on to the Health Belief Model as the model continued to develop.

The first construct is perceived susceptibility. This refers to a person's perceived susceptibility of the risk of getting an illness or condition. This construct explains that the greater the risk of acquiring a particular medical condition, the more likely it is that a person will enrol into behaviours to decrease such a risk. For example, an older person might take a decision to start walking daily as part of a healthy lifestyle to stay healthy. Another example is when a person decides to take the influenza vaccination to prevent any diseases.

The second construct focuses on perceived severity. This refers to a person's perceived severity on the seriousness of contracting an illness or a disease in particular if left untreated. In this situation, a person takes into account the medical consequences (e.g. poor quality of life, changed level of independence, disability, death) and also looks into the social consequences (e.g. the effect on family, work, and social relationships). This in turn means that according to the person's decision, they realise that their illness will leave an impact accordingly.

The third construct examines the perceived barriers. This refers to a person's feelings on the barriers to perform a recommended health action. The person's perceived barriers may be attached to cost such that the person weighs the effectiveness of the recommended health action against the perceptions that it may be expensive. Other perceived barriers may be unpleasant e.g. undesired side effects or inconvenient. From the six constructs, the third construct is considered to be the most influential construct in the Health Belief Model. This is because the perceived barriers are likely to determine, if a person will adopt the recommended new behaviour. Such a decision purely depends on whether the benefits of the said behaviour, outweighs the barriers/consequences. Furthermore, such a decision would be possible after the person has gathered enough information and knowledge, to understand the pros and cons of the recommended health action (Bloom Cerkoney & Hart, 1980).

The fourth construct looks at the perceived benefits. This refers to a person's perception of the effectiveness of the various recommended health-related actions to cure or decrease the seriousness of the illness or condition. Therefore, at this stage, the person may consider to follow the recommended health action if it is perceived as beneficial. For example, an older person is likely to attend to a health screening examination because such screening is seen as beneficial. The person must believe that their illness will improve if they choose to be compliant with their medication-taking. For this to be possible, it is vital that the benefits of changing a particular behaviour outweigh the risks.

Cue to action is the fifth construct which has been added on to the Health Belief Model. This construct is important because this is the stimulus required to trigger the decision-making process in order for the person to accept and come to terms with the recommended health action. These cues can be internal e.g. chest pains and coughing or external e.g. personal experiences, advice from significant others or information sought from newspaper and television programmes. Both internal and/or external cues are key components in compliance because they prompt and empower the person to initiate behaviour change (Bloom Cerkoney et al. 1980). Furthermore, these cues are important because they can play an important role in relation to compliance with medication-taking. This is because they can act as a reminder for patients to take their medications.

Self-efficacy is the six construct which has also been added on to the Health Belief Model. Self-efficacy refers to the person's level of confidence and ability to successfully adopt a desired behaviour. Self-efficacy is a construct used in several behavioural theories such as the Social Learning Theory (Bandura 1977) where it stresses on the importance of assessing the patient's motivation and beliefs which can be influential in relation to compliance in medication-taking. This theory also draws upon the patient's behaviour and the environment which are inter-related as well as important aspects with regards to compliance in medication-taking.

2.12.2 The TransTheoretical Model

The TransTheoretical Model of Behaviour Change (Prochaska et al., 1982; Prochaska et al., 1997) assesses patients' willingness to adopt and maintain new health behaviours. Literature puts forward extensive studies which demonstrate

that the TransTheoretical Model has been applied to a vast range of problem behaviours such as: exercise; medical compliance; stress management; and mammography screening (Prochaska et al., 1982; Prochaska et al., 1997).

The TransTheoretical Model consists of four main domains which include stages of change; processes of change; self-efficacy and decisional balance. From these four domains, the stages of change have been the common domain mostly referred to in literature. The model proposes that change occurs over a series of six stages namely 1) Precontemplation; 2) Contemplation; 3) Preparation; 4) Action; 5) Maintenance; and 6) Termination.

The earliest stage of the model is described as the Precontemplation stage. Individuals in this stage do not have any intention to proceed forward in taking action in the near future (defined as the next six months) in order to improve their current situation. Individuals in this stage are very often not aware of the pros of changing their behaviour but rather focus on the cons of changing their behaviour. Additionally individuals may be demotivated to make a behaviour change due to a past negative experience.

The second stage of the model is the Contemplation stage. By the time individuals proceeds to this stage, there is more awareness that their behaviour is problematic and weighing the advantages and disadvantages of changing such behaviour is taken into consideration. Although there is increase in awareness individuals might still be uncertain towards changing their behaviour.

Preparation stage is the third stage of the model. In this stage, individuals are determined to take action in the near future, usually defined within the next thirty days. Individuals, who arrived at this stage, many a times, made an attempt to change their behaviour during the past year but were unsuccessful in managing the change and following their plan of action such as talking to the doctor regarding cost of medication where, if possible, an alternative low cost medication is prescribed.

The Action stage shows individuals who are committed and intend to continue moving forward to achieve their goals with that behaviour change. An older person decides to be compliant with her statin tablets by taking the tablets as recommended to regulate cholesterol levels. This will help the older person to prevent further medical chronic conditions. During this stage there is also the possibility that an individual reverts back to the previous problem behaviour. This situation is possible if the individual would not be ready to take such a decision and commitment towards the chosen problematic behaviour.

Individuals who have reached the Maintenance stage would have successfully maintained their change in behaviour for at least six months. During this stage, the individual is still susceptible for relapse; however the possibility for relapse is less, because the individual has to maintain less effort to keep the commitment to the chosen behaviour change when compared to the other stages of the model. In this stage, there is a greater possibility that that patients' compliance in medication-taking will improve especially if the health benefits outweighs the risks.

The final stage of the model focuses on Termination. This stage was not part of the original model but was added on later. It is rarely used because it is rarely reached. Many a times, individuals hold their maintenance position. On the other hand, individuals who have entered the termination stage have no intention of going back to their previous unhealthy behaviour and are confident not to relapse to the previous stages of the TTM.

Researchers' stresses upon that during the stages of change, change, in itself is a process that happens over a period of time. It is important to note that progression from one stage to the following stage can happen in a linear direction. However many a times, progression happens in a non-linear manner as change requires time and it depends on the individuals' readiness (Prochaska et al., 1982; Prochaska et al., 1997).

It is noteworthy that for an individual to change a desired behaviour, the TTM further suggests that such a change can happen if the 10 processes of change are implemented. This is important so that the stages of change will be successful and will help individuals to maintain the change in behaviour. The 10 processes of change are divided into two categories: i) experiential processes which include the first 5 processes of change and ii) behavioural processes which groups the last 5 processes of change. The 10 processes of change are as follows:

- i) *Consciousness Raising*: the individual has increase awareness about the problem behaviour. Potential factors that help in increasing awareness include education, media campaigns, feedback and information about healthy behaviour.
- ii) *Dramatic Relief*: the individual reacts emotionally about the problem behaviour. The individual may feel worried, afraid or anxious because of the unhealthy behaviour. On the other hand, the individual may feel optimistic to change behaviour. Role play, sharing of personal experiences and media campaigns that focuses on improving compliance in medication-taking are interventions that can help individuals emotionally.
- iii) *Self-Reevaluation*: the individual starts to realise that the wish for a healthy behaviour is part of who they want to be. Healthy role models and value clarification play an important part in helping individuals to such reevaluation.
- iv) *Environmental Reevaluation*: the individual assesses and reflects the impact of their problem behaviour on the social environment. Involvement of family members and significant others can help the individual for such reevaluation in order to improve compliance in medication-taking post-discharge.

- v) *Social Liberation*: the individual realises that society is supportive towards the desired healthy behaviour. Health promotion in relation to compliance in medication-taking is a measure that helps individuals in such a situation.

- vi) *Stimulus Control*: stimuli that may trigger the individual to relapse. Therefore using reminders (e.g. alarm clock) can encourage and empower the individual to work towards the desired healthy behaviour which may result in being compliant with their medication-taking.

- vii) *Helping Relationships*: individuals who have social support whether informal or formal support can positively influence a change in behaviour which will encourage the individual to be compliant with their medication-taking post-hospitalisation. Hospital follow up appointments and positive relationship with the health care providers are further examples of social support which may also influence a change in behaviour.

- viii) *Counter Conditioning*: the individual requires finding alternative ways to move away from the unhealthy behaviour to a healthier behaviour.

- ix) *Reinforcement Management*: the individual's healthy behaviour is acknowledged and encouraged. By supporting and empowering the individual's change in adopting a healthy behaviour, there is a greater possibility that the individual maintain such behaviour and therefore will be compliant with the medication-taking.

- x) *Self-Liberation*: the belief that the individual can change the problem behaviour of being non-compliant and takes a commitment to work towards being compliant with their medication-taking post-hospitalisation.

(Prochaska et al., 1982; Prochaska et al., 1997).

Two other constructs which the TransTheoretical Model depends upon are self-efficacy adopted from the Social Learning Theory (Bandura, 1977) and decisional balance. Promoting self-efficacy is a key component to improve patient's compliance rates in medication taking. On the other hand, the decisional balance involves the individual weighing of the advantages and the disadvantages of changing such a desired behaviour. Both of these constructs demonstrate a significant association towards the individual's current stage of change. Additionally acquiring a positive self-efficacy along with a positive decisional balance is pertinent for the individual because it positively influences the individual's compliance in medication-taking.

In light of the above, the core principle for these theories to be successful with their interventions is to note and use feedback given by the patients. This is a possible measure of improving compliance in medication-taking with older persons.

2.13 Conclusion

The purpose of this literature review was to provide a detailed overview of relevant literature pertaining to compliance in medication-taking in older persons post-discharge from a rehabilitation hospital to home. This review highlights multiple of factors that needs to be taken into account when discussing and addressing the difficulties encountered by older persons regarding compliance in medication-taking. In addition, literature acknowledges that compliance in medication-taking post-hospitalisation is complex and there is no method considered as the gold standard in assessing compliance in medication-taking. Various strategies to improve compliance in medication-taking post-hospitalisation were looked into and an overview of the community services offered to older persons in Malta were also discussed. This review also draws upon the importance that various professions need to work together in a holistic approach within an inter-professional team practice with the patient being the main protagonist.

Chapter 3 deals with the methodology used during this study. This chapter focuses on the research design and the research tool used, the method used for the collection of the sample and the procedure used for both the pilot study and the actual study; followed by a brief overview of the pilot study. Ethical considerations of the study are also discussed.

Chapter 3

Methodology

CHAPTER 3 – METHODOLOGY

3.1 Introduction

The previous chapter gave a detailed overview of the available literature regarding compliance in medication-taking post-hospitalisation, as well as it highlights the multiple of factors that influences medication compliance, particularly in older persons. This chapter will give an overview of the methodology used for this research study. The Pilot Study was carried out between February 2012 and April 2012, during which the quantitative questionnaire was tested. A more detailed outcome of the pilot study is discussed further on in this chapter. After carrying out the necessary changes to improve upon the quantitative questionnaire, the actual study was then carried out between May 2012 and October 2012.

This chapter is made up of 10 main sections. The introductory section is followed by a discussion about the two main paradigms in social research, with particular reference, to the positivist social science along with the interpretive social science. This is then followed by a discussion about the reliability and validity of the research study, the research design and the research tool used. This chapter also highlights the method used for the collection of the sample and the procedure used for both the pilot study and the actual study. A brief overview of the results obtained from the pilot study will be also discussed. The final sections of this chapter include, (a) a discussion regarding the data analysis used, (b) a discussion about the ethical issues that emerged from the study, and (c) a discussion about the limitations of the research study.

3.2 Paradigms in Social Research

Literature puts forward various paradigms that have been debatable over the years in the social sciences. The positivist social science (Positivism) along with the interpretive social science (Interpretivism) are two of the most popular paradigms referred to in literature. For the purposes of this research study, the positivist social science along with the interpretive social science will be discussed.

3.2.1 The Positivist Social Science - Positivism

Positivism saw the beginnings during the nineteenth century by French philosopher Auguste Comte (1798 – 1857). Positivism is a scientific way of viewing reality (Crotty, 1998). Therefore, knowledge is based upon certainty considering that the appropriate scientific method is applied. Larrain (1979) argues that “one of the features of positivism is precisely its postulate that scientific knowledge is the paradigm of valid knowledge, a postulate that indeed is never proved nor intended to be proved” (p.197). Furthermore, Giddens (2001) claims that positivism is “the view that the study of the social world should be conducted according to the principles of natural science” (p.695).

Literature notes that during their research investigations, contemporary positivists give particular importance to objectivity, precision and generalisability. Many a times, contemporary positivists employ highly structured research methods. On the other hand, they also tend to use flexible methods realising that, very often it is difficult to select from beforehand the appropriate method that would suit best in investigating certain aspects of social reality.

Positivist researchers also attempt to remain neutral and distant from the participants of the research study. This is an important point for the positivist researcher in order not to be emotionally involved and therefore the researcher will be able to clearly distinguish between reason and feeling as well as between science and personal experiences. Positivist researchers should refrain from directly interacting with the participants of the research study. This is so, since such a behaviour, may possibly influence the participants behaviour. Positivists also state that it is essential to make clear distinctions between fact and value judgement. (Neuman, 2006; Rubin et al., 2005).

Further literature asserts that the positivist researcher

“should formulate new concepts as the outset and not only rely on lay notions ... There is a preference for the precision which is believed possible in a discipline based language rather than the vague and imprecise language of everyday life” (Blaikie, 1993, p.206).

Positivists focus on trying to identify facts and understand how and why people behave in a particular manner. This is important so that positivist researchers, will eventually be able to establish links between the different facts and behaviour being studied, and will be also able to formulate theories that explain such a behaviour. Since a positivist researcher relies on objectivity and facts, this at the same time may be translated and seen as a drawback. This is due to possible power relations, present between the researcher and the research participant, which in turn may influence the knowledge acquired for the purposes of the research project being investigated (Gordon, 1993).

Positivism is generally characterised by a quantitative approach because this type of approach emphasise on collecting factual data. Furthermore, a quantitative approach is preferred over a qualitative approach because the data collected can be easily transformed to numbers and statistics. Literature highlights different types of research instruments that can be used to collect quantitative data such as comparative studies, questionnaires with closed ended questions, structured interviews, experiments and observational studies.

3.2.2 The Interpretive Social Science - Interpretivism

Interpretivism is “an approach to social research that focuses on gaining an empathic understanding of how people feel inside, seeking to interpret individuals’ everyday experiences, deeper meanings and feeling, and idiosyncratic reasons for their behaviors” (Rubin et al., 2005, p. 750).

Literature emphasise that interpretivist researcher focuses mainly on three essential principles namely consciousness, unpredictability and action. Therefore unlike positivists, findings cannot be generalised but, interpretivist researchers works upon finding meaning and understanding the research participant personal experience in their own social situation. Thus giving importance to subjectivity as well as interpreting reality which contains a set of values (Hughes & Sharrock, 1997) as interpretivist researchers, believe that reality is socially constructed, unlike positivist researchers, who view reality objectively. Furthermore, interpretivism highlights that there is no single reality but multiple realities which contrary to positivism, such realities cannot be measured and generalised. Layder (1994) argues that a main disadvantage associated with the interpretivist research

paradigm, is that it under estimates the influence that power relations and wider social structures, may possibly effect the way the research participants view social realities. Moreover, while on the one hand interpretivism provides in depth results, on the other hand, interpretivist “results are often criticised in relation to validity and reliability and the ability to generalise, referred to collectively as research legitimisation” (Kelliher, 2005, p.123).

Interpretivism is dominated by a qualitative approach as this type of approach is interested in “examining social research data without converting them to a numerical format” (Rubin et al., 2005, p.527) unlike quantitative analysis. In addition, interpretivism outlines that there are various realities of the event being investigated, unlike positivism, which claims that there is only one reality. Moreover interpretivism highlights that the different presenting realities may possibly change across time and place. Literature puts forward different types of research instruments / designs that can be used to collect qualitative data. The common types of qualitative designs referred to in literature include phenomenology, participant observation, semi structured interviews, grounded theory, historical, questionnaires with open ended questions, case studies and ethnography.

In light of the two paradigms discussed, it is evident that an interpretivist approach, calls for a more qualitative research. Rubin et al. (2005) defines that qualitative research methods “emphasize the depth of understanding associated with idiographic concerns” (p.63). One of the strengths of this type of approach focuses on the rich understanding that it permits. According to Rubin et al. (2005), adopting

a qualitative approach allows the researcher to be flexible, iterative, and continuous, such that an interaction between the researcher and the respondent takes place. Thus this approach gives space for the questionnaire to be flexible in order to adapt to the particular respondent (Rubin et al., 2005). An advantage in the use of this technique is that it allows respondents to express their views as well as it allows the researcher to obtain a better understanding of the respondent's experience in relation to subject being studied.

On the other hand, a positivist approach calls for a more quantitative research. A definition outlined by Rubin et al. (2005) describes that quantitative research methods "emphasize the production of precise and generalizable statistical findings and are generally more appropriate nomothetic aims" (p.63). The structured questionnaire designed for this research study was based on information gathered from the literature review. The questionnaire for this study was designed in such a way that allowed respondents to answer freely even if they did not have an opinion about a particular statement. A closed-ended questionnaire carried out through face-to-face interviews, was chosen for various reasons mainly:

- To obtain a higher response rate when compared to self-mailing questionnaires;
- To gather more accuracy in the results;
- To facilitate the analysis of the tool;
- To limit the participants responses (Rubin et al., 2005).

In addition Fink (1995) reports that:

“the benefit of close-ended questions is that they are easy to standardise, and data gathered from closed-ended questions lend themselves to statistical analysis. The down side to close-ended questions is that they are more difficult to write than open-ended questions. This is because the evaluator must design choices to include all the possible answers a respondent could give for each question” (<http://coe.sdsu.edu/eet/Articles/surveyquest/index.htm>)

The closed-ended questions were based on a 5-point Likert-Scale (1 = Strongly Agree to 5 = Strongly Disagree). This seems to be the most suitable type of scale for this study because each item can be quantified in a standardised manner (Rubin et al., 2005). The advantage of using the Likert-Scale is based on the unambiguous language used and therefore, respondents will be unable to “sort of agree” (Rubin et al., 2005, p.225) with a presented statement. A disadvantage in the use of this scale is the fact that the research participants were unable to express their views in more depth in relation to a particular statement. At the same time, this is an advantage for standardisation which was carried out in a short period of time (Rubin et al., 2005).

In light of the above, this research study was based on a quantitative approach because it seemed to be the most appropriate way to tackle the research question for this study. This is because it aims to find answers to the research question: ‘To what extent are patients over the age of 60 discharged home from the rehabilitation hospital to home were compliant in their medication-taking: Six weeks post-hospitalisation?’.

3.3 Reliability and Validity of the Research Study

Reliability and validity are two very important inter-related concepts of measurement used for any research instrument and for any type of research study. Both reliability and validity are mainly concerned about consistency and truthfulness. Furthermore, qualitative and quantitative researchers aim for both reliable and valid measurement, however each approach, views reliability and validity from a different perspective to one another. Research argues that achieving reliability does not translate into achieving validity. On the other hand, one cannot have validity without also having reliability. In addition, research also acknowledges that obtaining reliability is easier than obtaining validity.

Reliability and validity are tools of an essentially positivist epistemology. While they may have undoubtedly proved useful in providing checks and balances for quantitative methods, they sit uncomfortably in research of this kind, which is better concerned by questions about power and influence, adequacy and efficiency, suitability and accountability (Watling as cited in Simco & Warin, 1997).

Reliability “concerns the amount of random error in a measure and measurement consistency. It refers to the likelihood that a given measurement procedure will yield the same description of a given phenomenon if that measurement is repeated” (Rubin et al., 2005, p.203).

There are a number of statistical tests to measure reliability in social research such as Test-retest reliability. This type of test can be carried out by providing the questionnaire to a group of respondents on two different occasions (separated by about 1 week) to determine how consistent the research participants are in their

replies. Usually the Kappa test and Kendall tau test are used to assess test-retest reliability. The type of test used however depends on whether the variables (questions) have a nominal or ordinal scale (Camilleri, personal communication, January 13, 2014).

Literature puts forward three types of reliability in relation to quantitative research namely: stability reliability, equivalence reliability and representative reliability. Research acknowledges that it is unlikely to achieve perfect reliability and therefore suggests four ways of improving reliability namely: "(1) clearly conceptualize constructs, (2) use a precise level of measurement, (3) use multiple indicators, and (4) use pilot tests" (Neuman, 2006, p.190).

In light of the above, the researcher used pilot tests as a measure of reliability for this research study. By means of carrying out a pilot study, the researcher had the opportunity to test out the questionnaires which will be used during the actual study. There are several advantages attached when running a pilot study. These include rewording or eliminating any unclear question, estimating the time required for the questionnaire to be filled in and improving upon the design of the research questionnaire. On the other hand, van Teijlingen and Hundley (2001) argues that one of the main disadvantages when "completing a pilot study successfully is not a guarantee of the success of the full scale" (p.2) of the research questionnaire in the main study. This is because pilot studies do not have any support of statistical input and many a times, pilot studies are carried out on a small number of research participants (van Teijlingen et al., 2001).

The pilot study for this research was carried out between February 2012 and April 2012. There were ten research participants eligible for the pilot study. A more detailed outcome of the pilot study is discussed further on in this chapter. The ten respondents, who formed part of the pilot study, were not included in the actual study. This was an important aspect of the study, so that the results obtained from the pilot study, would not have contaminated the results for the main study. The above procedures undertaken during the pilot study were also important aspects to improve upon the internal validity of the research questionnaire.

Validity “is not a single fixed or universal concept, but rather a contingent construct, inescapably grounded in the processes and intentions of particular research methodologies and projects” (Winter, 2000, p.1). In addition, Rubin et al. (2005) states that the term validity “refers to the extent of systematic error in measurement – the extent to which a specific measurement provides data that relate to commonly accepted meanings of a particular concept” (p.203).

Literature refers to two main types of validity in relation to quantitative research namely internal validity and external validity. Internal validity is made up of face validity, content validity, criterion validity and concurrent validity. On the other hand, external validity corresponds to historic validity, population validity and ecological validity. Research acknowledges that it is unlikely to achieve perfect validity.

Validity is normally used when you are measuring a latent variable that cannot be measured directly. In such a situation, the researcher devise a number of

items/statements presented in the format of a Likert Scale, in which the research participants are provided with five items/statements and will have to tick one of the five presented items/statement. In order to assess the validity of these items, the Cronbach's Alpha is normally the test used (Camilleri, personal communication, January 13, 2014).

Due to time constraints, a validity test was not carried out. However, the questionnaire was presented and discussed with two senior pharmacists who currently work at the Rehabilitation Hospital Karin Grech. Both pharmacists have over eight years of experience working in the field of older persons. The presentation and discussion of the questionnaire was an important task for the research study. This is because the researcher had to ensure that the appropriate terms were used when formulating the questions and also particularly, when it came to translating the questionnaires into Maltese and English respectively. In addition, this task was useful because it enabled the researcher to further clarify and reword any ambiguous question, as well as, taking into considerations any suggestions that were brought forward by the pharmacists. Furthermore, this was equally important since the researcher does not come from a pharmaceutical or medical field but from a social field. Thus, such discussions were also necessary as at the same time, the researcher could appreciate and understand better the topic being investigated. This is because during the research study, especially when compiling the literature review, the researcher encountered a degree of difficulty when it came to the understanding of particular aspects of technicality regarding compliance in medication-taking.

3.4 The Research Design

The most satisfactory research approach planned for this research study was to conduct a quantitative analysis using closed-ended questions. The questionnaire was tested out through a pilot study, which took place between February 2012 and April 2012, where an overview of the study is discussed further on in this chapter. After the pilot study was completed, it was felt that in light of the actual study, changes were required throughout the questionnaire. After the changes were carried out in preparation for the actual study, a quantitative approach was still the preferred and suitable research method to be employed for this research study.

3.5 Eligibility Criteria for the Pilot Study and the Actual Study

3.5.1 Eligibility Criteria

Eligibility for this study was based on the following criteria:

- 1) Patients older than 60 years;
- 2) Patients who takes at least 2 drugs;
- 3) Patients who were discharged home;
- 4) Patients who were literate;
- 5) Patients whose medical history includes at least one chronic condition;
- 6) Patients who have no diagnosis of cognitive impairment;
- 7) Patients who were given a follow-up appointment at Day Hospital/Out-Patients within six weeks post-discharge.

3.5.2 Non-Eligibility Criteria

Exclusion from this study was according to the following criteria:

- 1) Patients who were already in residential care;
- 2) Patients who were discharged to a residential home;
- 3) Patients who were transferred to another hospital directly from the Rehabilitation Hospital Karin Grech e.g. Mater Dei Hospital;
- 4) Patients who died shortly after discharge;
- 5) Patients younger than 60 years;
- 6) Patients who were diagnosed with a cognitive impairment;
- 7) Patients who take less than 2 drugs;
- 8) Patients who were illiterate;
- 9) Patients whose medical history does not include any chronic condition;
- 10) Patients who were not given a follow-up appointment at Day Hospital/Out-Patients.

This criterion was carried out to ensure that the research participants understand the purpose of the study and would be able to provide reliable information. No geographic location or gender variables were selected as part of the above criterion.

3.6 Site for the Pilot Study and the Actual Study

The Rehabilitation Hospital Karin Grech was chosen for the research study sample because it assesses and rehabilitates young adults and older persons. Such a service is offered through inter-professional teamwork, with the aim of helping

these persons, to achieve their maximum potential independence in order to return and live in the community. RHKG consists of nine wards with a bed capacity of 280. The hospital also provides daily follow-up appointments at Day Hospital and Out Patients.

3.7 The Pilot Study – Choice of Participants, Procedure and Results

A pilot study is an important task of any research study because it increases the possibility of obtaining a good research design. In fact De Vaus (1993) clearly states: “Do not take the risk. Pilot test first” (p.54). In light of this statement, a pilot study was carried out prior to the actual study to pretest the research tool. By means of the pilot study, the researcher had the opportunity to (1) identify any possible errors such as an ambiguous question, and (2) improve upon the design of the research tool.

Marshall (1998) in *A Dictionary of Sociology* accurately defined a pilot study as: “any small-scale test of a research instrument (such as a questionnaire, experiment, or interview-schedule), run in advance of the main fieldwork, and used to test the utility of the research design” (http://www.encyclopedia.com/topic/pilot_study.aspx).

The Pilot Study was carried out between February 2012 and April 2012, during which the quantitative questionnaire was tested. A more detailed outcome of the pilot study is discussed further on in this chapter. After carrying out the necessary changes to the quantitative questionnaire, the actual study was then carried out between May 2012 and October 2012.

3.7.1 Choice of Participants

Literature describes two types of sampling methods referred to the probability sampling methods and the non probability sampling methods. Sampling methods associated with the quantitative research is usually carried out through probability sampling methods, including cluster sampling, simple random sampling, stratified random sampling and quasi-random sampling. Probability sampling technique provides an equal chance to all those persons who fulfil the established criteria of the research study, prepared in advance by the researcher, to be chosen as a research participant to form part of the research study leading, to a representative sample (Neuman 2006; Rubin et al., 2005).

The choice of the research participants for the Pilot Study was selected through simple random sampling across the nine wards present at the hospital. All of the selected research participants were given a follow-up appointment at Day Hospital or Out-Patients within six weeks post-discharge. The eligible patient sample was based on all wards since no ward deals with just one specific medical condition. Furthermore, patients are admitted from all over Malta and Gozo to any one of these nine wards according to bed availability. Also patients admitted to the hospital come from different walks of life. The choice of simple random sampling seems to be most appropriate to “ensure a degree of representativeness” (Rubin et al., 2005, p.267). The sample was then collected between February 2012 and April 2012. A total of 30 consecutive discharges were gathered for the purpose of the sample, however only ten were eligible for the research study.

3.7.2 Procedure used for the Pilot Study

Once a patient was given a follow-up appointment at Day Hospital or Out-Patients, the researcher, who is a Social Worker by profession at the same hospital, was informed through administration personnel of the given appointments taking place during the time of the research study. When such information was communicated the next step followed. By means of simple random sampling the ten eligible research participants were selected. The researcher then collected patient related information such as demographic data from the patient's medical file. The patient's medical file was available according to the location of the follow-up appointment i.e. either at Day Hospital or Out-Patients. Following this, the researcher met each potential participant individually six weeks post-discharge during their follow-up appointment given at Day Hospital or Out-Patients accordingly. Those who were eligible to participate for the pilot study were given a letter explaining the aims of the study along with their rights associated with the study (See Appendix 2 for the participants' letter and consent form prepared in both English and Maltese language).

Once the above mentioned procedure was carried out, arrangements were made accordingly so as to carry out the face-to-face closed-ended questionnaire based on a 5-point Likert-Scale at Day Hospital or Out-Patients accordingly (See Appendix 3 for the English and Maltese version of the questionnaire).

To eliminate any confusion, for each eligible patient, a separate file was purposely created to store such a data. For confidentiality purposes and to be in line with the Data Protection Act (2004), this file was retained by the researcher and kept at the

social work office. This file was destroyed once the data collection process was over.

3.7.3 An Overview of the Pilot Study

The Patient's Questionnaire was divided into two main sections. Section A dealt with the patient's demographic details, whereas, Section B dealt with 22 closed-ended questions focusing on compliance in medication-taking six weeks post-discharge, based on a 5-point Likert Scale (1=Strongly Agree to 5=Strongly Disagree) together with a comments box.

Through this section a brief overview of the patient sample will be discussed. A total of 30 consecutive discharges were gathered for the purpose of the sample, however only ten were eligible for the study. All ten patients agreed to participate in the study. Twenty patients were not eligible for the pilot study for various reasons, mainly because they were being discharged to residential homes, patients were already in residential care, younger than 60 years or were re-admitted shortly after discharge. The ten eligible patients for the pilot study consisted of four males and six females i.e. 40% and 60% respectively represented by **Table 1**.

Gender	Frequency	Percentage
Male	4	40%
Female	6	60%
Total	10	100%

Table 1 – Frequency and Percentage of Eligible Patient Sample by Gender

Table 2 highlights the frequency and the percentage of the patient sample by age cohort. The age of the ten eligible patients for the pilot study ranged 60 years to 89 years. No participants were above 90 years of age. The popular age cohort is 80-89 years, being 40% of the total sample.

Age Cohorts	Frequency	Percentage
60-69	3	30%
70-79	3	30%
80-89	4	40%
90-99	0	0%
100+	0	0%
Total	10	100%

Table 2 – Frequency and Percentage of Eligible Patient Sample by Age Cohorts

Table 3a shows the frequency and the percentage of the sample by region. The ten eligible patients live within four of the six regions of Malta. These regions are the Northern Harbour, the Western, the Southern Harbour, the Southern Eastern and Gozo and Comino. There were no patients from the Northern Region and from Gozo and Comino. The majority of the patients lived in the Southern Harbour Region (50%), followed by the Southern Eastern Region (30%), the Northern Harbour Region (10%), and the Western Region (10%).

Regions	Frequency	Percentage
Northern Harbour	1	10%
Western	1	10%
Southern Harbour	5	50%
Southern Eastern	3	30%
Northern Region	0	0%
Gozo and Comino	0	0%
Total	10	100%

Table 3a – Frequency and Percentage of Eligible Patient Sample by Region

Table 3b shows the list of localities which fall under the above-mentioned regions.

Regions	Localities
Northern Harbour	Qormi, Birkirkara, Gżira, Hamrun, Msida, Pembroke, Pieta', St. Julians, San Gwann, St. Venera, Sliema, Swieqi, Ta' Xbiex
Western	Mdina, Żebbuġ, Siġġiewi, Attard, Balzan, Dingli, Lija, Rabat, Mtarfa
Southern Harbour	Valletta, Vittoriosa, Senglea, Cospicua, Żabbar, Fgura, Floriana, Kalkara, Luqa, Marsa, Paola, St. Luċija, Tarxien, Xgħajra
Southern Eastern	Żejtun, Birżebbuġa, Gudja, Għaxaq, Kirkop, Marsaskala, Marsaxlokk, Mqabba, Qrendi, Safi, Żurrieq
Northern Region	Għargħur, Mellieħa, Mġarr, Mosta, Naxxar. St. Paul's Bay
Gozo and Comino	Victoria, Fontana, Għajnsielem, Għarb, Għasri, Ta'Kerċem, Munxar, Nadur, Qala, San Lawrenz, Ta' Sannat, Xagħra, Xewkija, Żebbuġ.

Table 3b – List of Localities by Region

Table 4 represents the frequency and the percentage of the sample by status. Out of the ten eligible patients, 40% were single, 40% were married and 20% were widow/er. No other status than the above-mentioned emerged.

Status	Frequency	Percentage
Single	4	40%
Married	4	40%
Widow/er	2	20%
Other	0	0%
Total	10	100%

Table 4 – Frequency and Percentage of Eligible Patient Sample by Status

Table 5 illustrates the frequency and the percentage of the sample according to the patient's living arrangements post-hospitalisation. The ten eligible patients lived either alone (20%), with spouse (50%) or significant others e.g. son/daughter (30%), post-hospitalisation.

Living Arrangements	Frequency	Percentage
Alone	2	20%
With Spouse	5	50%
Other	3	30%
Total	10	100%

Table 5 – Frequency and Percentage of Eligible Patient Sample by Living Arrangements Post-Hospitalisation

Table 6 represents the frequency and the percentage of the patient's type of medication card. The patient's details regarding their type of medication card was collected during the pilot study. This was felt necessary so as to give a better description of the patient, and could also reflect reasons for non-compliance if present. 40% of the patients were in possession of the Yellow Card, 20% were holders of the Pink Card while 40% had both the Yellow Card and the Pink Card respectively.

Type of Medication Card	Frequency	Percentage
Yellow Card Only	4	40%
Pink Card Only	2	20%
Yellow and Pink Card	4	40%
Other	0	0%
Total	10	100%

Table 6 – Frequency and Percentage of the Eligible Patient Sample by Type of Medication Card

Table 7 highlights the frequency and percentage of the patient's main diagnosis. The diagnoses of these ten eligible patients were divided into two main categories. (See Appendix 4 for the list of general conditions which are divided into specific conditions respectively).

Main Diagnosis (General Conditions)	Frequency	Percentage
Orthopaedic	4	40%
Medical	6	60%
Total	10	100%

**Table 7 – Frequency and Percentage of the Eligible Patient Sample
According to Main Diagnosis**

The majority of the patients were admitted with only one main diagnosis. Therefore, it was decided that the secondary diagnosis would be collected during the actual study. Both the main and the secondary diagnoses would give a better description of the patient, and could also potentially explore the reasons for non-compliance in medication-taking if present. Furthermore, it was felt that such data was necessary because further awareness about compliance in medication-taking post-hospitalisation could be raised. Through raising awareness, it may shed light on ways to decrease non-compliance post-discharge.

In Section B, which was made up of 22 closed-ended questions, it was observed that statement 9 (*“If a drug that falls under the Pharmacy Of Your Choice (POYC), should it be out of stock, I would consider buying it”*) ranked the highest position. In fact, 80% of the eligible patients from the sample agreed with the above-mentioned statement. **Table 8** illustrates the frequency and percentage of the eligible patient sample for each statement.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1. I intentionally stopped taking any of the medication without seeking professional advice.	0 (0%)	3 (30%)	1 (10%)	3 (30%)	3 (30%)
2. I stopped taking any of the medication because I was feeling better.	2 (20%)	4 (40%)	1 (10%)	2 (20%)	1 (10%)
3. I stopped taking any of the medication because I did not see/feel any signs of improvement.	0 (0%)	5 (50%)	2 (20%)	2 (20%)	1 (10%)
4. I stopped taking any of the medication because I felt sceptic about it.	0 (0%)	3 (30%)	3 (30%)	4 (40%)	0 (0%)
5. I stopped taking any of the medication because I was feeling worse.	0 (0%)	3 (30%)	1 (10%)	5 (50%)	1 (10%)
6. I stopped taking any of the medication due to fear of side effects.	1 (10%)	3 (30%)	3 (30%)	3 (30%)	0 (0%)
7. I refer to the drug with its generic name.	1 (10%)	2 (20%)	4 (40%)	1 (10%)	2 (20%)
8. I experienced difficulty to buy any of the medication due to financial constraints.	3 (30%)	3 (30%)	1 (10%)	3 (30%)	0 (0%)
9. If a drug that falls under the Pharmacy Of Your Choice (POYC), should it be out of stock, I would consider buying it.	0 (0%)	8 (80%)	0 (0%)	1 (10%)	1 (10%)
10. I feel knowledgeable about my medication. (name/purpose)	2 (20%)	5 (50%)	0 (0%)	2 (20%)	1 (10%)
11. I encountered difficulty to go to the pharmacy.	3 (30%)	1 (10%)	0 (0%)	4 (40%)	2 (20%)

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
12. I encountered difficulty to read medication labels due to small print.	2 (20%)	5 (50%)	0 (0%)	2 (20%)	1 (10%)
13. I encountered difficulty in following instructions.	0 (0%)	6 (60%)	0 (0%)	3 (30%)	1 (10%)
14. I experienced difficulty in opening the drug container/packaging.	1 (10%)	1 (10%)	0 (0%)	6 (60%)	2 (20%)
15. I encountered difficulty to distinguish tablets which look similar in size.	0 (0%)	2 (20%)	0 (0%)	5 (50%)	3 (30%)
16. The size of the drug affects me.	2 (20%)	1 (10%)	1 (10%)	2 (20%)	4 (40%)
17. The colour of the drug affects me.	0 (0%)	0 (0%)	1 (10%)	3 (30%)	6 (60%)
18. The shape of the drug affects me.	2 (20%)	1 (10%)	0 (0%)	3 (30%)	4 (40%)
19. The taste of the drug affects me.	1 (10%)	1 (10%)	0 (0%)	3 (30%)	5 (50%)
20. There were times when I took any of my medication in smaller doses than prescribed.	0 (0%)	1 (10%)	3 (30%)	4 (40%)	2 (20%)
21. There were times when I took any of my medication less frequently than prescribed.	0 (0%)	0 (0%)	4 (40%)	3 (30%)	3 (30%)
22. I accidentally skipped taking any of the medication.	2 (20%)	2 (20%)	2 (20%)	3 (30%)	1 (10%)

Table 8 – Frequency and Percentage of the Eligible Patient Sample for each Statement

Additionally, all ten eligible participants made use of the comments box. The popular comment put forward by the eligible patient sample was the introduction of monthly meetings when attending for hospital or health centres follow-up appointments (30%). This was followed by the set up of a telephone helpline (20%). **Table 9** describes the frequency and percentage of the comments/suggestions put forward by each research participant.

Comments/ Suggestions	Frequency	Percentage
Helpline	2	20%
Freephone	1	10%
Monthly meetings at the local council/health centre	1	10%
Monthly meetings when attending for follow-up appointment at Day Centre/ Day Hospital/ Out-Patient at RHKG	3	30%
Homevisit by a pharmacist	1	10%
Homevisit by other professional staff	1	10%
The medication chart will be the size of the identification card to fit in the wallet/pocket	1	10%
Total	10	100%

Table 9 – Frequency and Percentage of the Eligible Patient Sample for each comment/suggestion

3.7.4 Amendments to the Questionnaire

In this section an overview of the amendments that the researcher felt that were required, in light of the pilot study and in preparation for the actual study, are discussed.

In Section A, when asking for the patient's details, it emerged that further information about their condition was required. For this reason the diagnosis was divided into two, namely (1) Main diagnosis and (2) Secondary diagnosis. The main diagnosis highlights the primary reason for admission, while the secondary diagnosis shows any possible complications to be overcome in order to achieve a full recovery. In this manner, a fuller description of the patient would be obtained.

On the day of discharge, the ward pharmacist at RHKG provides the patient with a previously prepared leaflet called the 'Discharge Medication Chart' (See Appendix 5 for a sample of the discharge medication chart). Information found on one side of this leaflet includes the patient's name and identification card number, the ward and the pharmacist's name together with some general knowledge and guidance about medicines. On the other side one finds a medication schedule in the form of a timetable which includes the following information:

- 1) the name of the medication;
- 2) the dose;
- 3) the time the dose should be taken;
- 4) the reason for taking the medication; and
- 5) other information.

Therefore it was felt that a new section would be added to the main questionnaire which focuses specifically on the 'Discharge Medication Chart'. In fact the researcher designed a semi-structure questionnaire (See Appendix 6 Section B for the amended questionnaire) based on information gathered from the literature review and the pilot study. This section contains one closed-ended question followed by three sub-questions made up of both closed-ended and open-ended questions, presented in the following manner:

1) Do you make use of the 'Discharge Medication Chart'?

1. Yes []

2. No []

a) If no, why? _____

b) If yes, would you consider changing anything?

1. Yes []

2. No []

c) If yes, what? _____

This approach to data collection gave space for the questionnaire to be flexible in order to adapt to the particular respondent (Rubin et al., 2005). Literature acknowledges that when using a "highly structured research method ... [it is] also likely to employ flexible methods, recognising that we often are unable to determine in advance the best way to investigate some aspects of social reality" (Rubin et al., 2005, p.40).

Such an approach was necessary to continue obtaining a better understanding of the patient's needs and how these needs could be met. Furthermore, it would also give the patient the opportunity to voice their own experience in relation to medication-taking and additionally, may shed light on ways of improving compliance in medication-taking post-hospitalisation, with present and future patients. In view of the above changes, it is noteworthy that, this research study is still considered to be a quantitative study. This section was required to be added after Section A and replaced by the previous Section B for the following reasons:

- 1) to be presented in a chronological order;
- 2) to enable the patient to focus on a particular time and space;
- 3) to help the patient feel more at ease. This is because if the patient uses the discharge medication chart, s/he would be able to relate/associate to the chart. Thus it is more likely to gather relevant responses;
- 4) this might act as an ice-breaker in preparation for the next section which includes the closed-ended questions leading to obtaining truthful/accurate responses as much as possible.

Due to the preceding amendments Section B, which dealt with 22 closed-ended questions focusing on compliance in medication-taking six weeks post-discharge based on a 5-point Likert Scale (1=Strongly Agree to 5=Strongly Disagree), was changed to Section C (See Appendix 8 Section C for the amended questionnaire). After the results of the quantitative questions were evaluated, it was felt that more information about the patient's own experience was needed. Therefore, the following two questions were added, at the end of the 22 closed-ended questions,

leading to a total of 24 closed-ended questions (See Appendix 6 Section C for the amended questionnaire).

Question 1

I prefer to take my medication at one time rather than at different times (Question 23).

Question 2

The relationship with the professionals influences my decision to take any of my medication (Question 24).

These two questions were necessary to continue:

- 1) gaining a deeper understanding of the patient's present situation;
- 2) looking at the patient as the main protagonist, this would start to give some indication on ways of improving compliance with present and future patients;
- 3) attending and focusing on the patient's needs;
- 4) understanding and being sensitive to the patient's concerns;
- 5) empowering , as required, the patient to seek professional advice;
- 6) raising further awareness about compliance in medication-taking post-hospitalisation; through raising awareness, it may shed light on ways to decrease non-compliance.

After evaluating the results of the pilot study, it was decided that the 'comments box' needed to be separated from the quantitative questions. Therefore, it was felt that a new section (Section D) should be added to the main questionnaire (See Appendix 6 Section D for the amended questionnaire). Furthermore, when asking for the patient's comments, it emerged that the comments box' required a semi-structured format. In fact the researcher designed a semi-structure questionnaire in light of the pilot study. This section contains a closed-ended question followed by a sub-question made up of an open-ended question, presented in the following manner:

1) Do you have any comments/suggestions in relation to medication administration?

1. Yes []

2. No []

a) If yes, what? _____

Although this approach to data collection gave space for the questionnaire to be flexible in order to adapt to the particular respondent (Rubin et al., 2005), as explained earlier, this research study is still considered to be a quantitative study. Adopting a semi-structured format was necessary because it would be difficult for the researcher to present the data. A clear advantage, of structuring the comments box, is that it is an effective way of collecting data from a large group of people by using a standardised method (Strange, Forrest, Oakley, & the Ripple Study Team, 2003). Using such a technique allowed space for the participants to respond freely and come up with their own suggestion/s. Furthermore, it also allows the

researcher to continue obtaining a better understanding of the respondent's experience, perceptions and interpretations in relation to compliance in medication-taking post-hospitalisation.

The questionnaire required no further changes. The participants showed good understanding of all the previously prepared questions and answered them without any hesitation and/or difficulty.

3.8 Data Analysis

3.8.1 Test of Statistical Significance

The Chi-Square (X^2) is a non-parametric test of statistical significance and it is designed for nominal and ordinal data. The chi-square test seems to be the appropriate test to be employed in this research study. This is because literature suggests that for this test to be used, the research study has to be a quantitative study, the variables of the questionnaire are categorical, there has to be a minimum of 5 expected observations and the observations are independent (Neuman, 2006).

In light of the above, the research design fulfilled all the above mentioned criteria and therefore the chi-square significance test was run using Statistical Package Software Sciences Version 18 for Windows (SPSS 18, SPSS Inc. Chicago, IL, USA) to analyse the data collected. Furthermore, the chi-square significance test is the appropriate test for this study, because it enables the researcher, to assess and analyse, whether the association between the two categorical variables

(gender and rating evaluation for a statement) is significant (Neuman, 2006). The p-value was at 0.05 level of significance. The data collected for this research study was also entered into a database created using Microsoft Office Excel Sheet (2007) where the data was converted to percentages and analysed. Additionally, graphical presentation was employed using tables, bar graphs and pie charts accordingly.

3.8.1 The Null Hypothesis

The null hypothesis (H_0) specifies that there is no association between the two categorical variables (the proportions of males and females for each rating evaluation are comparable) and any observed pattern is due only to chance. Thus the null hypothesis is accepted if the p-value exceeds the 0.05 level of significance. The null hypothesis does not specify that there is no gender discrepancy in the rating evaluation for a particular statement (Camilleri, personal communication, December 10, 2013).

3.8.2 The Alternative Hypothesis

The alternative hypothesis (H_1) specifies that there is a significant association between the two categorical variables (the proportions of males and females for each rating evaluation differ significantly) and it is therefore accepted if the p-value is less than the 0.05 level of significance. The alternative hypothesis indicates that there is gender discrepancy in the rating evaluation for a particular statement (Camilleri, personal communication, December 10, 2013).

3.9 Ethical Considerations

This research study was based on handing questionnaires to randomly selected patients who attended follow-up appointments at Day Hospital or Out-Patients within the Rehabilitation Hospital. Although the research participants were adults, ethical issues still arose. Such issues included informing the potential participants about the implications of the study, and informing them about their right to withdraw from the research study.

To access research participants, the researcher required two essential permissions. The first permission was required from the University of Malta Research Ethics Committee while the second permission was required from the Research Committee within the Rehabilitation Hospital. Once the above permissions were granted (See Appendix 7), the researcher obtained further permission from the following persons within the Rehabilitation Hospital namely: (1) the 9 Consultants, (2) the Nursing Officer responsible at Day Hospital, and (3) the person responsible at Out-Patients. All of the permissions were requested in writing and granted (See Appendix 7).

Potential participants for the study were asked to give their consent before the questionnaires were administered. Participants' were reassured that anonymity, confidentiality and any other information which may identify them was safeguarded. Furthermore, the participants had the possibility to refuse to participate in the study, to withdraw from participating at any stage of the study, to ask and clarify any questions and to refuse to answer any questions which they

were not comfortable in answering. Participants were also informed that the questionnaire was not too much time consuming. This research study was thus an 'overt' (Silverman, 2000, p.98) research study as the research participants were aware of the study.

A letter of consent which was prepared in two versions one in English and one in Maltese, was given to each potential participant. The letter included an explanation to the participants about the research study along with issues of confidentiality and their rights associated with the study. This was clearly read and discussed. This was important to prevent any undesired stress and anxiety. Once the participants' agreed with the contents, they were asked to sign the consent letter which was stored in the patient's file mentioned earlier. Besides being in line with the Data Protection Act (2004) which the researcher referred to earlier, this approach to ethical issues is also in line with the Code of Ethics of the Maltese Association for Social Workers (MASW, 1996) and the British Sociological Association's Ethical Practice (2002).

Another important ethical consideration in this research study was the fact that the researcher, works within the hospital where the study was conducted. Hence, there are ethical considerations about insider research which need to be discussed. Some of the advantages of insider research include that access from the Research Committee within the Rehabilitation Hospital was more easily granted; data collection was less time consuming and increased flexibility in accessing research participants was noted (Scott, 1985).

Literature on insider researcher varies. On the one hand, Hammersley (1993) claims that “there are no overwhelming advantages to being an insider or an outsider. Each position has advantages and disadvantages, though these will take on slightly different weights depending on the particular circumstances and purposes of the research” (p.219).

On the other hand, Hannabus (2000) explains:

The [insider] researcher knows his / her environment well, knows by instinct what can be done and how far old friendships and favours can be pressed, just when and where to meet up for interviews, what the power structures and the moral mazes and subtexts of the company are and so what taboos to avoid, what shibboleths to mumble and bureaucrats to placate. They are familiar with the organisational culture, the routines and the scripts of the workplaces (p.103).

On the contrary, Shah (2004) claims that the research participants may feel judged. To overcome this possible feeling, the researcher was clear from the initial contact that no information about the participants would be disclosed but measures were taken to safeguard participants’ confidentiality and anonymity as discussed earlier.

Potential advantages of meeting the participants face-to-face include the possibility of attaining higher response rates when compared to self-administered or self-mailing questionnaires. Another plausible advantage is that the participants’ were provided with the opportunity to clarify any questions, leading to “obtaining relevant responses” (Rubin et al., 2005, p.291).

3.10 Conclusion

This chapter gave an overview of the paradigms in social research. This was then followed by a brief overview of the two main types of research methods followed by an explanation that lead the researcher adopts a quantitative approach. The questionnaire was carried out with the participants six weeks post-hospitalisation once discharged home from a rehabilitation hospital. A pilot study to test the quantitative questionnaire was carried out by means of simple random sampling across the nine wards present at the hospital. After that, the pilot study was evaluated and amendments were implemented prior to the actual study. Overviews regarding the data analysis employed together with the choice of a statistical significance test (the chi-square test) were also taken into consideration. The final section of this chapter ends with a discussion about the ethical issues that arose during this research study, along with, a number of limitations associated with the study.

Chapter 4 discusses the results of the research study. The first part of the chapter begins with giving a profile of the eligible patient sample. This is then followed by an overview of the findings of the actual research, based upon a quantitative approach obtained from the different sections of the questionnaire. The final section of this chapter gives an overview of the main findings highlighted from the study.

Chapter 4

Findings

CHAPTER 4 – FINDINGS

4.1 Introduction

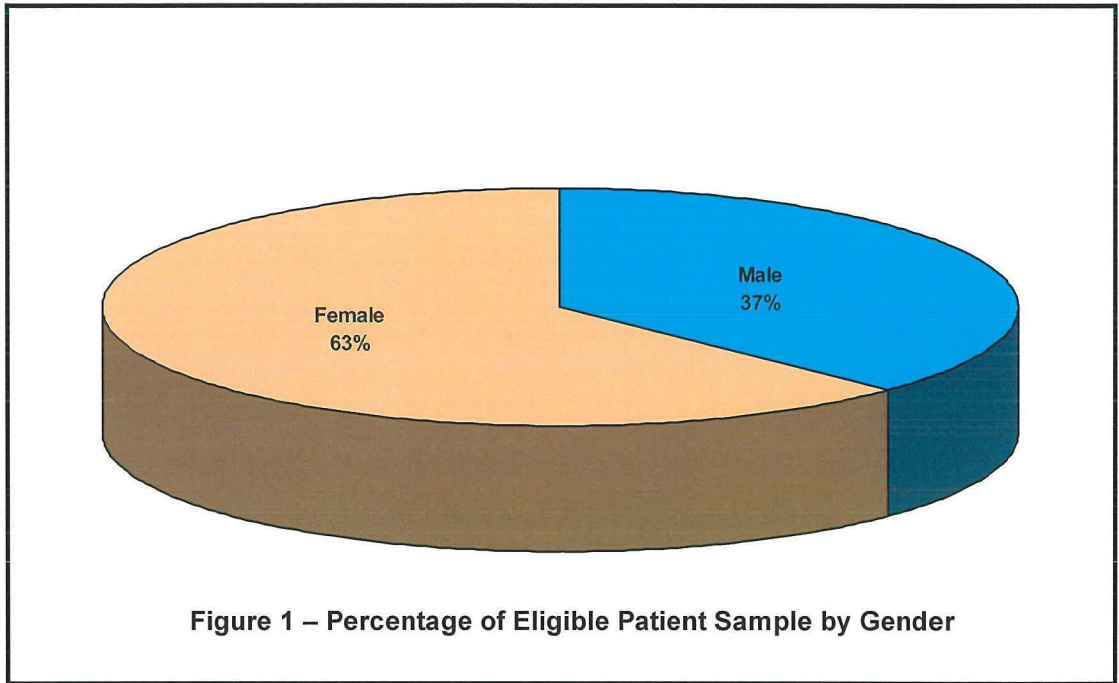
This chapter begins with giving a profile of the eligible patient sample. This is then followed by an overview of the findings, from the different sections of the questionnaire, of the actual research study based upon a quantitative approach. For the purposes of this study, a global sample of 195 patients was collected. Out of 195 patients, 120 (61.5%) patients were eligible for this study. However, thirty (15.4%) patients refused to participate in the study and seventy five (38.5%) patients agreed to participate in the study. Ninety (46.2%) patients were not eligible for the study because the established criteria, namely older than 60 years, had follow up appointments, discharged to own home, literate and no diagnosis of cognitive impairment, were not met.

4.2 Section A: Profile of the Eligible Patient Sample

This section gives a description of all the seventy five patients who agreed to participate in the study.

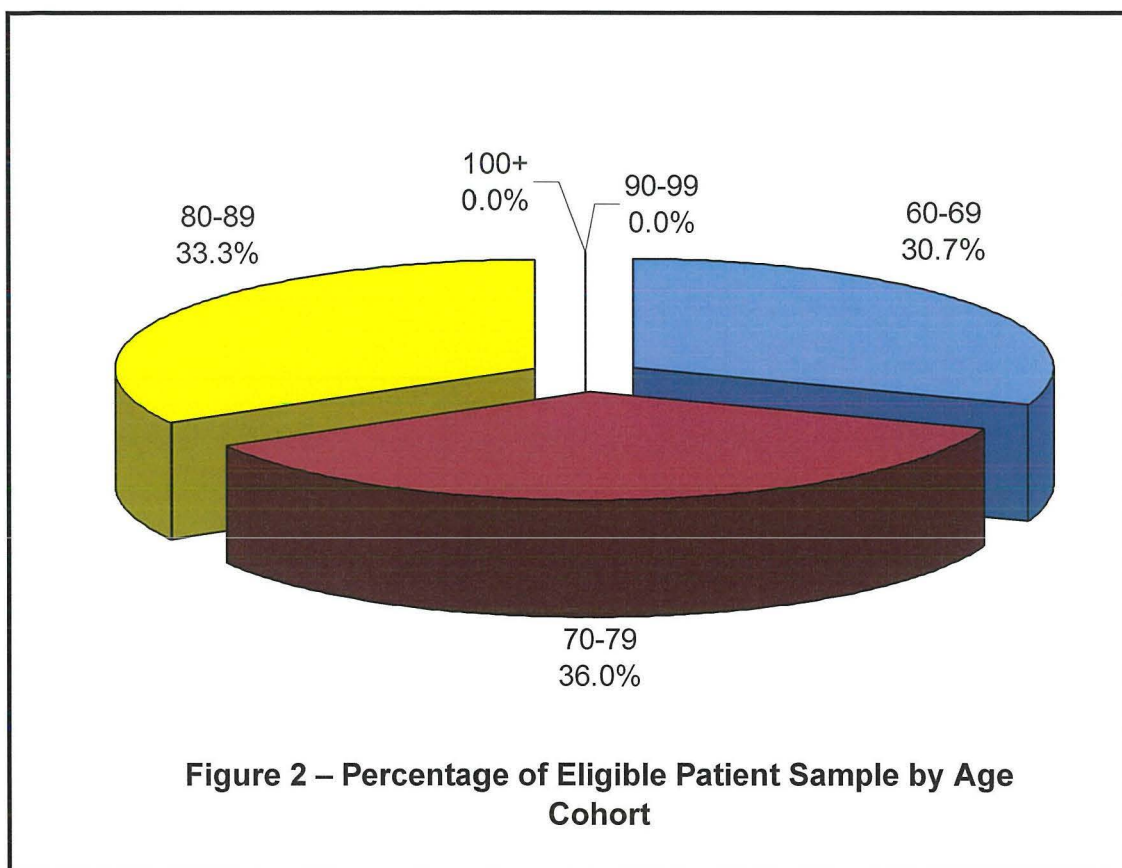
4.2.1 Eligible Patient Sample: Gender

Figure 1 highlights the percentage of the eligible patient sample by gender. The seventy five patients, who agreed to participate in the study, consisted of twenty eight males (37.3%) and forty seven females (62.7%) respectively.



4.2.2 Eligible Patient Sample: Age

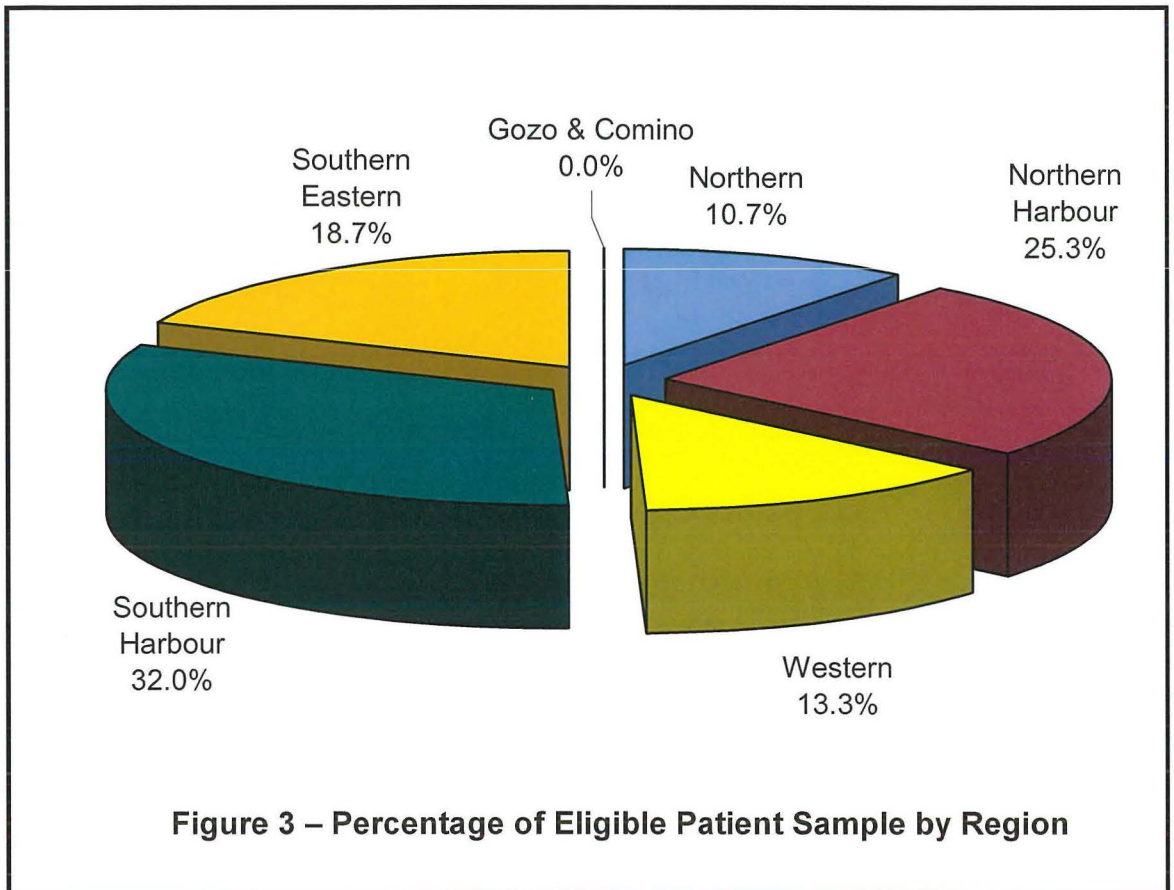
Figure 2 illustrates the percentage of the eligible patient sample by age cohort. Both males and females ranged from 60 years to 89 years. No participants were above 90 years of age. 30.7% of the eligible patient sample is within the 60-69 year age. 36% of the total eligible patient sample is within the 70-79 year age cohort while 33.3% of the sample is within the 80-89 year age cohort. It is evident that the 70-79 age cohort is the most popular cohort.



4.2.3 Eligible Patient Sample: Regions

Figure 3 shows the percentage of the sample admitted by region. The eligible patient sample was admitted from the five regions of Malta. These regions are the Northern, Northern Harbour, the Western, the Southern Harbour and the Southern Eastern. The majority of the patients lived in the Southern Harbour Region (32%), followed by the Northern Harbour Region (25.3%), the Southern Eastern Region (18.7%), the Western Region (13.3%), and the Northern Region (10.7%). The difference between the Southern Harbour Region (32%) and the Northern Region (10.7%) is of 21.3%. It is interesting to note that the locality of Zabbar which falls within the Southern Harbour Region ranked highest position as five patients forming part of the actual study were admitted from this locality. Meanwhile, the

localities of Floriana and Paola which are also two localities classified under the Southern Harbour Region had the lowest admissions with one patient each respectively.



4.2.4 Eligible Patient Sample: Status

Figure 4 represents the percentage of the sample by status. It is clear that 44% of the sample are married, 36% are widow/er, 18.7% are single and 1.3% scored as other.

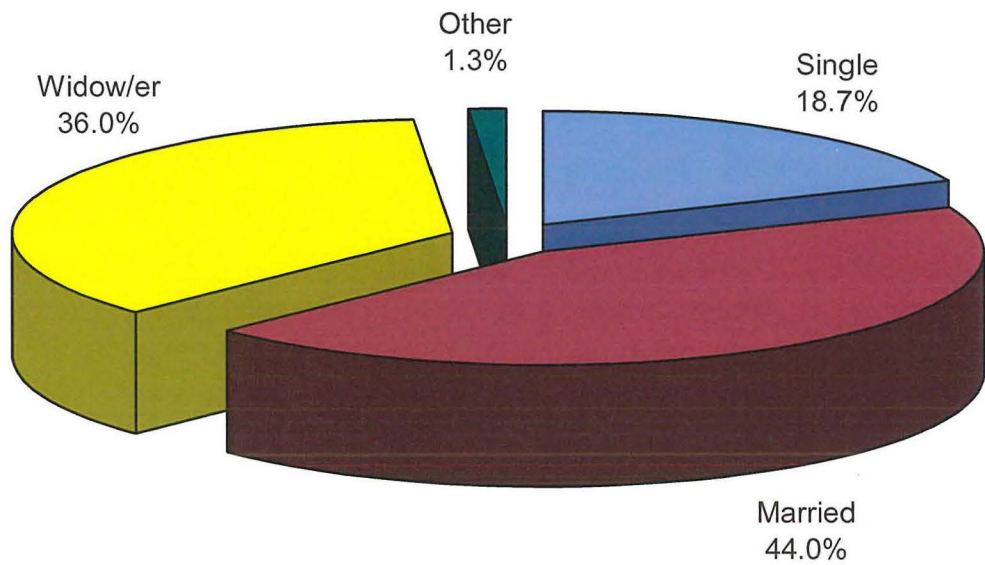


Figure 4 – Percentage of Eligible Patient Sample by Status

4.2.5 Eligible Patient Sample: Living Arrangements

Figure 5 illustrates the percentage of the sample according to the patient's living arrangements post-hospitalisation. It is interesting to note that two out of the three patient's living arrangements i.e. living alone and living with spouse both scored equally (37.3% respectively) as opposed to 25.3% of the sample who live with significant others e.g. son/daughter.

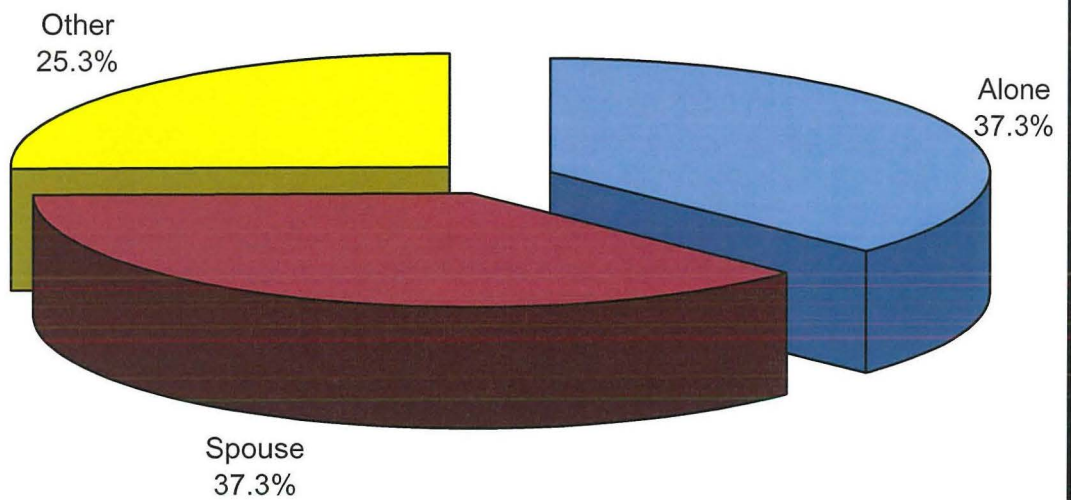
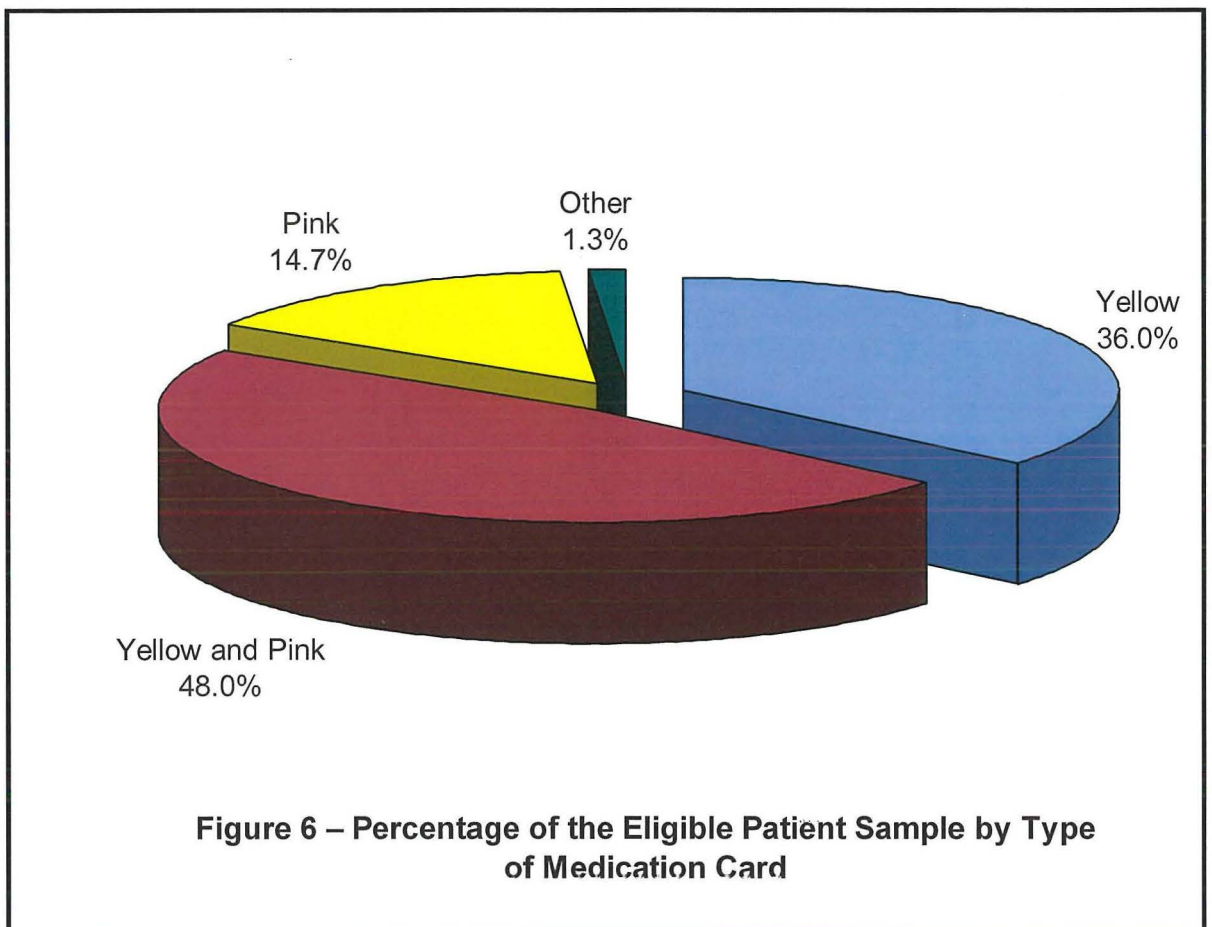


Figure 5 – Percentage of Eligible Patient Sample Living Arrangements Post-Hospitalisation

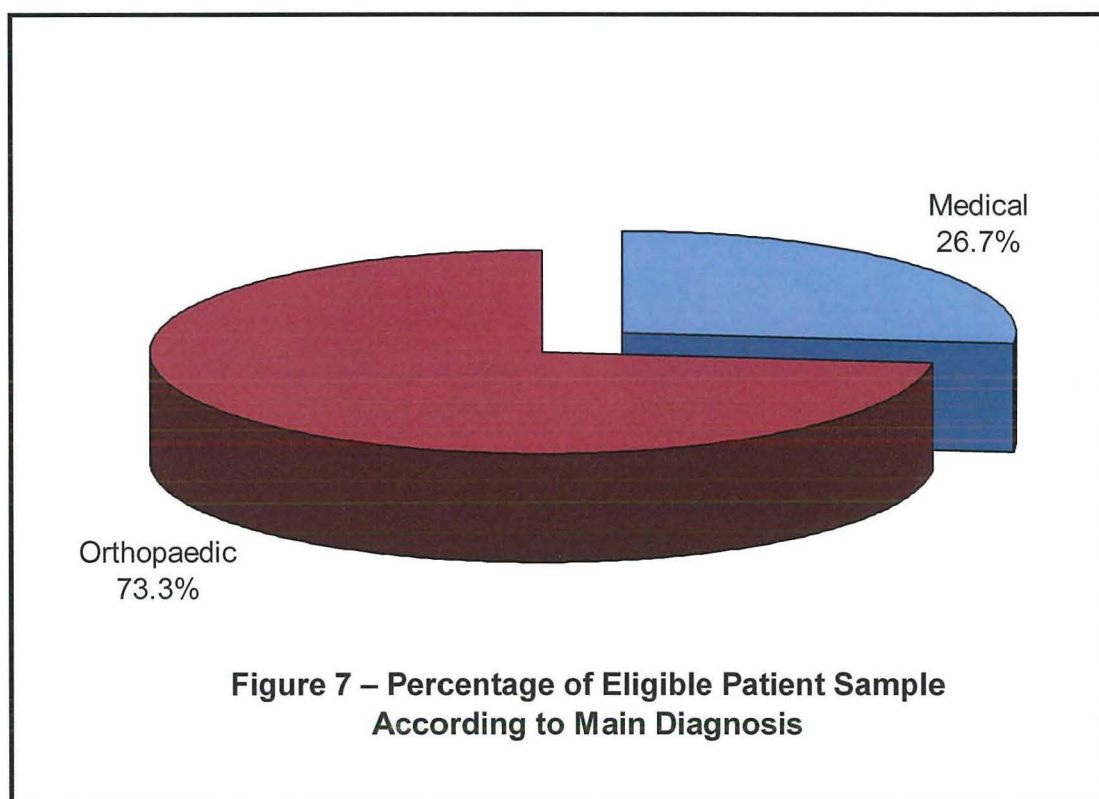
4.2.6 Eligible Patient Sample: Type of Medication Card

Figure 6 represents the percentage of the patient's type of medication card. The patient's details regarding their type of medication card was collected in order to give a better description of the patient, and reasons for non-compliance, if present. It is clear that 48% of the patients were in possession of both the Yellow and Pink Card, 36% were holders of the Yellow Card, 14.7% had the Pink Card and 1.3% had a different card from the above-mentioned medication cards.



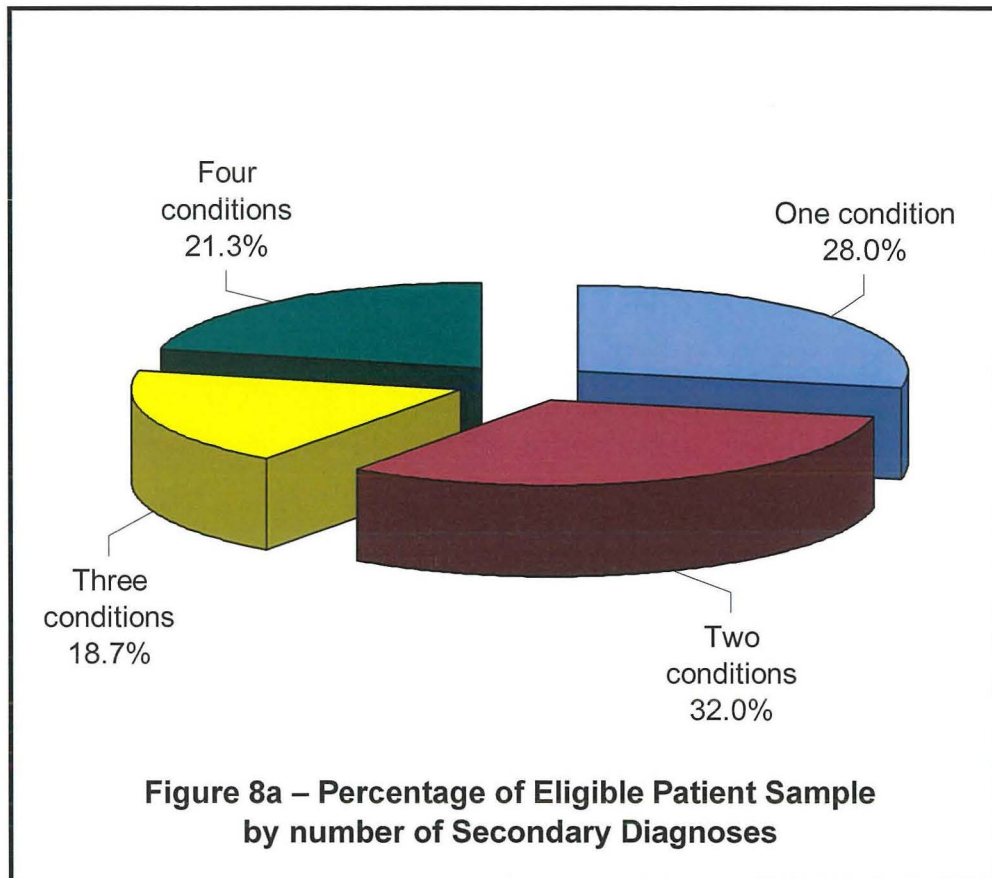
4.2.7 Eligible Patient Sample: Main and Secondary Diagnosis

Figure 7 represents the percentage of admissions according to the patient's main diagnosis. The eligible patients were admitted to the Rehabilitation Hospital Karin Grech for various reasons. For the purposes of this study, the researcher divided the main diagnoses into two general conditions namely Orthopaedic and Medical conditions. The majority of patients (73.3%) were admitted with a main diagnosis of an orthopaedic condition while (26.7%) of the eligible patient sample were admitted with a main diagnosis of a medical condition.

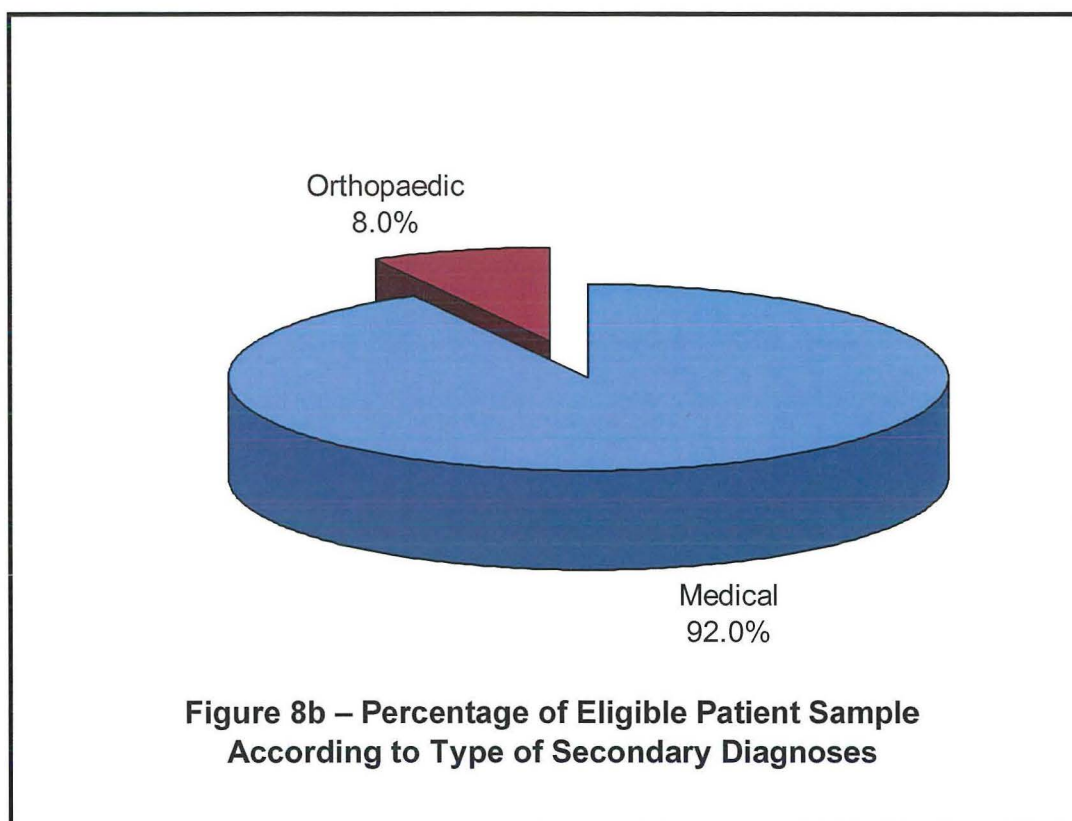


The eligible patient sample besides being admitted with a main diagnosis had also between one and four other conditions which were considered secondary. For the purposes of this study, the researcher also divided the secondary diagnoses into

two general conditions namely Medical and Orthopaedic conditions. **Figure 8a** highlights the percentage of the sample by number of secondary diagnoses. It is clear that 32% of the sample were admitted with 2 conditions that are classified as secondary diagnosis.



It is quite evident that the most common type of secondary diagnosis is of a medical nature (92%). **Figure 8b** illustrates the percentage of the eligible patient sample according to type of secondary diagnoses. It is interesting to note that the three most common medical conditions classified as secondary diagnosis were Hypertension (n=32) followed by Diabetes Mellitus (n=28) and Hypercholesteremia (n=17). (See Appendix 8 for the list of secondary conditions)

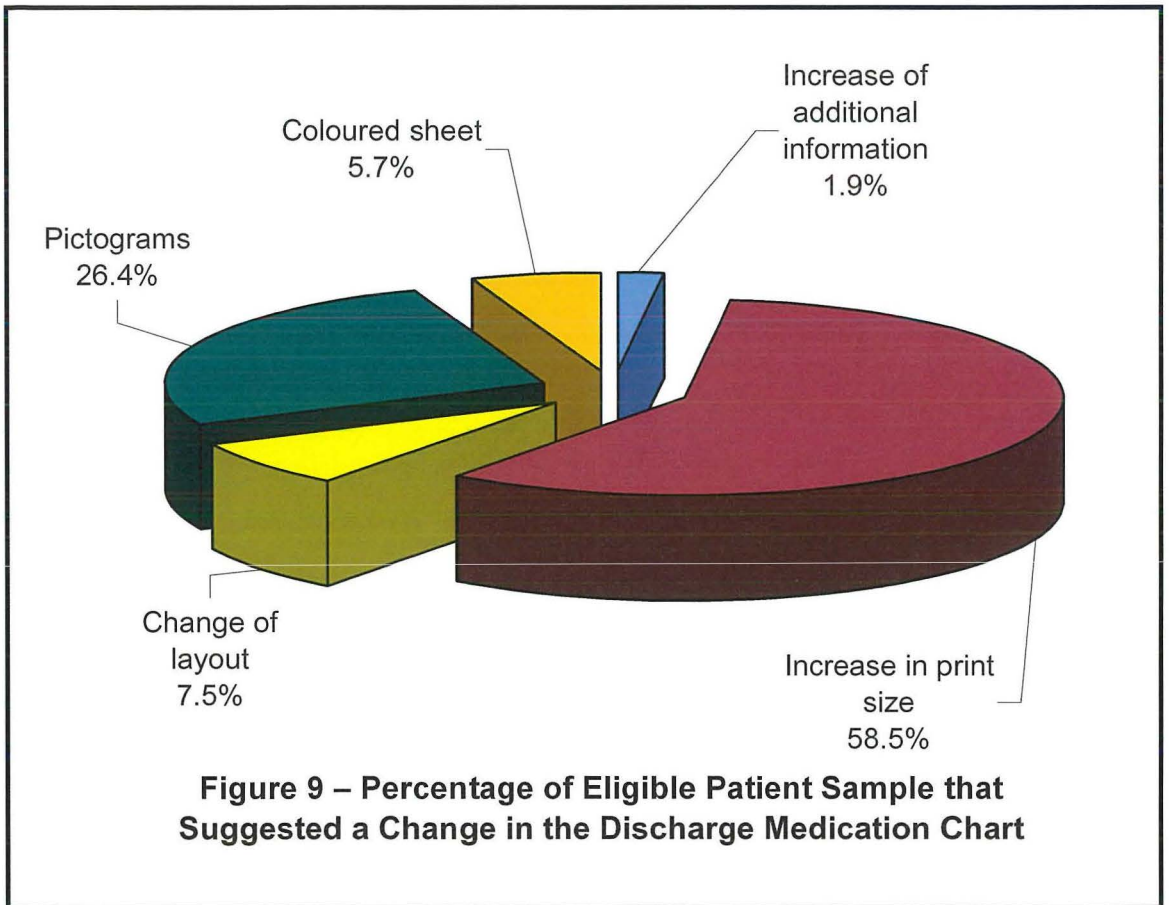


4.3 Section B: Discharge Medication Chart

This section illustrates the use of the discharge medication chart from the seventy five patients who agreed to participate in the study.

4.3.1 Eligible Patient Sample: Discharge Medication Chart

Figure 9 represents the percentage according to the suggested changes put forward by the patients. All patients from the eligible patient sample responded positively in making use of the discharge medication chart. However, 70.7% of the sample considers a change in the medication chart. Out of these, 58.5% of the patients suggested an increase in print size, 26.4% suggested pictograms, 7.5% recommended a change in layout, 5.7% mentioned the use of a coloured sheet and 1.9% emphasised on increase of additional information.



4.4 Section C: The 24 Closed-Ended Questions

This section highlights the results of all the seventy five patients who consented to participate in this research study. These results are obtained from the 24 closed-ended questions focusing on compliance in medication-taking six weeks post-discharge, based on a 5-point Likert Scale.

4.4.1 Question 1

Figure 10 shows the percentage of the eligible patient sample that intentionally stopped taking any of their medication without seeking professional advice. The findings of this research study shows that more male participants (50%) as opposed to female participants (38.3%) agree they intentionally stopped taking any of their medication without seeking professional advice whereas, a further 21.4% males and 10.6% females strongly agree with this statement. By contrast, the percentage of female participants who disagreed (23.4%) and strongly disagreed (14.9%) surpassed the percentage of male participants in both categories i.e. 17.9% and 10.7% who stated that they intentionally stopped taking any of their medication without seeking professional advice. On the other hand, only female respondents (12.8%) are uncertain about this statement.

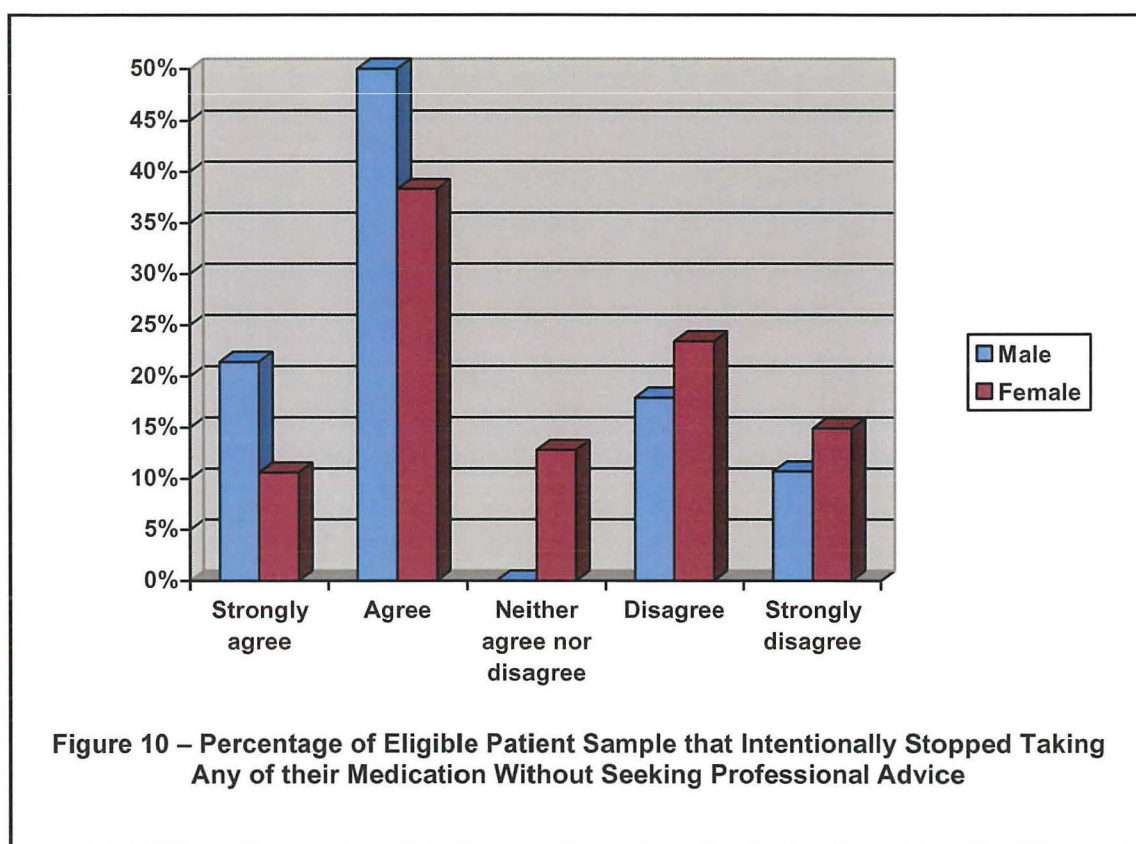
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	6	5	11
	% within Gender	21.4%	10.6%	14.7%
Agree	Count	14	18	32
	% within Gender	50.0%	38.3%	42.7%
Neither agree nor disagree	Count	0	6	6
	% within Gender	0.0%	12.8%	8.0%
Disagree	Count	5	11	16
	% within Gender	17.9%	23.4%	21.3%
Strongly disagree	Count	3	7	10
	% within Gender	10.7%	14.9%	13.3%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.014 ^a	4	.198
Likelihood Ratio	7.996	4	.092
Linear-by-Linear Association	2.265	1	.132
N of Valid Cases	75		

a. 4 cells (40.0%) have expected count less than 5.
The minimum expected count is 2.24.



$$X^2 (4)=6.014, p=0.198$$

Since the p-value (0.198) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding that the sample intentionally stopped taking any of the medication without seeking professional advice.

4.4.2 Question 2

Figure 11 shows the percentage of the eligible patient sample that stopped taking their medication because they were feeling better. It is evident that 38.3% of females as opposed to 28.6% of males in this study disagree that they stopped taking any of their medication because they were feeling better while, a further 19.1% of female respondents and 14.3% of male respondents strongly disagree with this statement. By contrast, this research study has shown that 29.8% of females and 25% of male participants agree with the statement. It is interesting to note that only 8.5% female respondents strongly agree that they stopped their medication because they were feeling better as opposed to 21.4% male respondents. Furthermore, only 4.3% females are uncertain whether they stopped taking their medication because they were feeling better as opposed to 10.7% males.

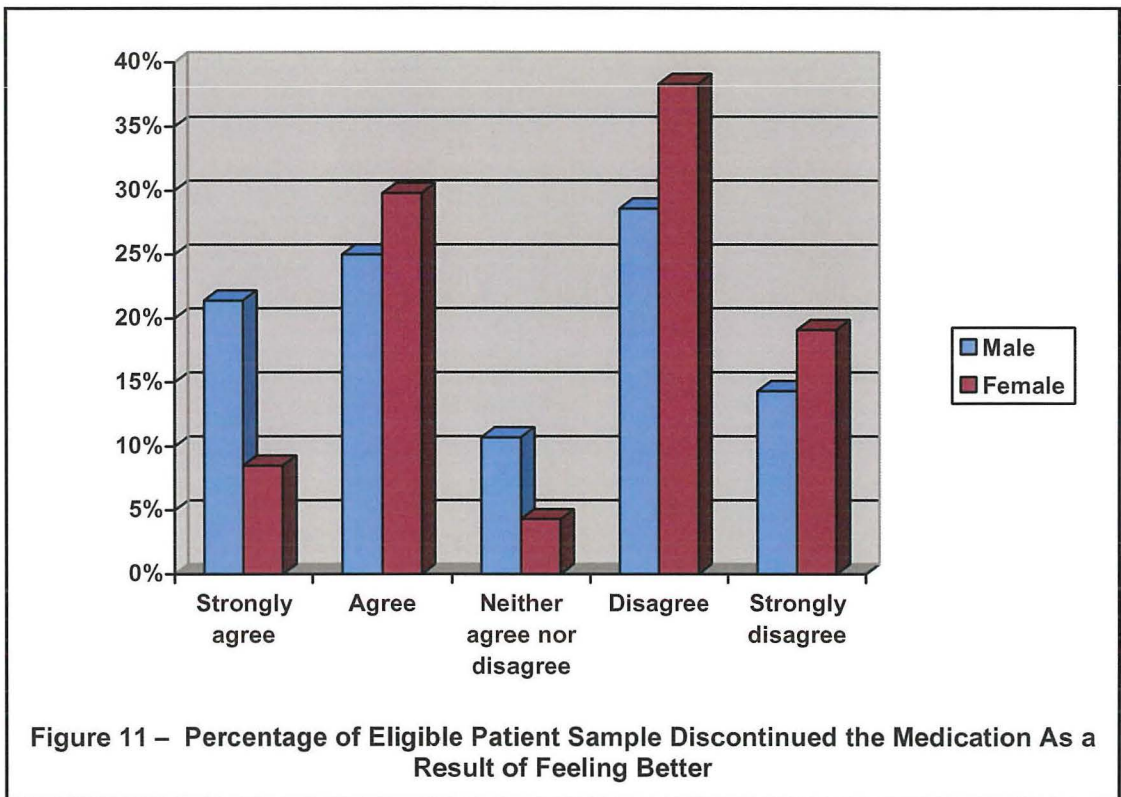
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	6	4	10
	% within Gender	21.4%	8.5%	13.3%
Agree	Count	7	14	21
	% within Gender	25.0%	29.8%	28.0%
Neither agree nor disagree	Count	3	2	5
	% within Gender	10.7%	4.3%	6.7%
Disagree	Count	8	18	26
	% within Gender	28.6%	38.3%	34.7%
Strongly disagree	Count	4	9	13
	% within Gender	14.3%	19.1%	17.3%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.156 ^a	4	.385
Likelihood Ratio	4.037	4	.401
Linear-by-Linear Association	1.550	1	.213
N of Valid Cases	75		

a. 4 cells (40.0%) have expected count less than 5.
The minimum expected count is 1.87.



$$X^2 (4) = 4.156, p = 0.385$$

Since the p-value (0.385) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding stopping the medication as a result of feeling better.

4.4.3 Question 3

Figure 12 demonstrates the percentage of the eligible patient sample that stopped taking their medication as a result of not seeing/feeling any signs of improvement. Data from this research study shows that 40.4% of female respondents as opposed to 21.4% male respondents disagree that they stopped taking any of their medication because they did not see/feel any signs of improvement. On the other hand, only 10.7% males and 14.9% females stated that they strongly disagree with this statement. By contrast, 42.9% of male participants agreed and 14.3% strongly agreed that they stopped taking any of their medication because they did not see/feel any signs of improvement surpassed the percentage of female participants 29.8% and 4.3% respectively. It is interesting to point out that 10.7% of males closely followed by females 10.6% are uncertain whether they stopped taking any of their medication because they did not see/feel any signs of improvement. Thus, the difference is only 0.1%.

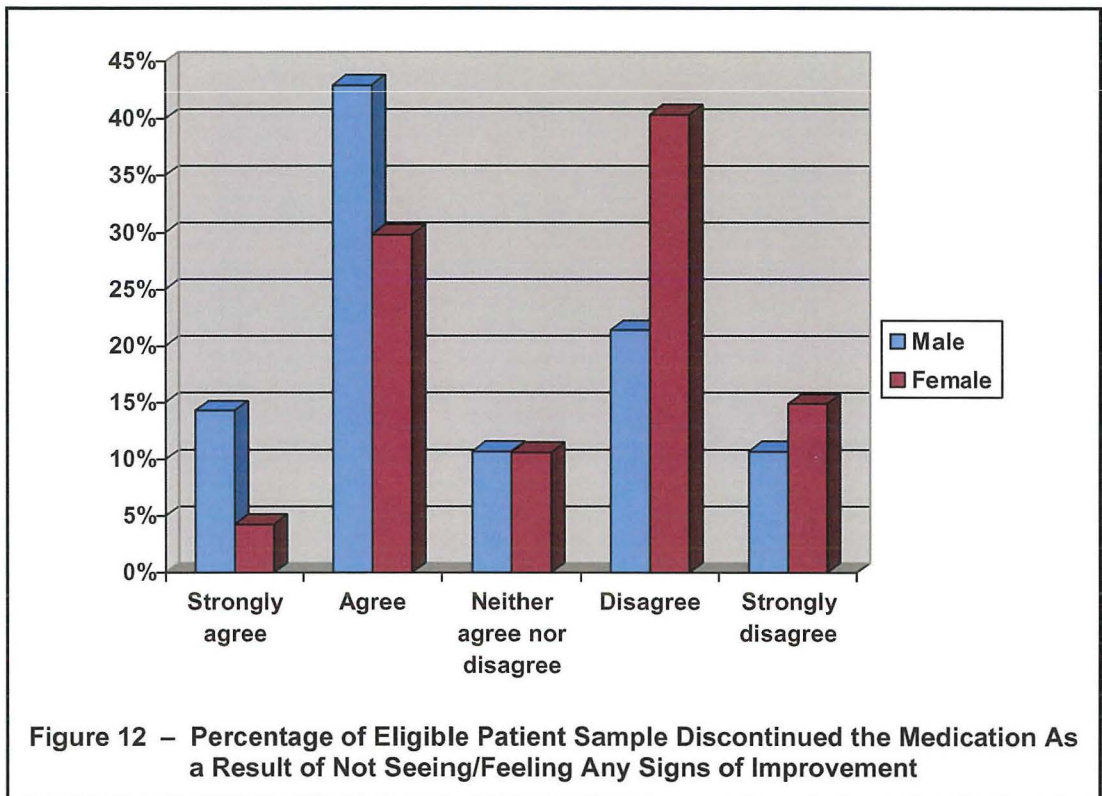
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	4	2	6
	% within Gender	14.3%	4.3%	8.0%
Agree	Count	12	14	26
	% within Gender	42.9%	29.8%	34.7%
Neither agree nor disagree	Count	3	5	8
	% within Gender	10.7%	10.6%	10.7%
Disagree	Count	6	19	25
	% within Gender	21.4%	40.4%	33.3%
Strongly disagree	Count	3	7	10
	% within Gender	10.7%	14.9%	13.3%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.201 ^a	4	.267
Likelihood Ratio	5.222	4	.265
Linear-by-Linear Association	4.154	1	.042
N of Valid Cases	75		

a. 4 cells (40.0%) have expected count less than 5.
The minimum expected count is 2.24.



$$X^2 (4) = 5.201, p = 0.267$$

Since the p-value (0.267) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding stopping the medication as a result of not seeing/feeling any signs of improvement.

4.4.4 Question 4

Figure 13 illustrates the percentage of the eligible patient sample that stopped their medication because they felt sceptic. The findings of this research study shows that 40.4% female participants and 35.7% male participants disagree that they stopped taking any of their medication because they felt sceptic about it, while a further 12.8% males and 10.7% females strongly disagree with this statement. By contrast, 25% males closely followed by 21.3% females agree that they stopped taking any of their medication because they felt sceptic while 10.7% males and only 2.1% females strongly agree with this statement. It is noteworthy that the participants who are uncertain whether they stopped taking any of their medication because they felt sceptic consisted of 23.4% females and 17.9% males.

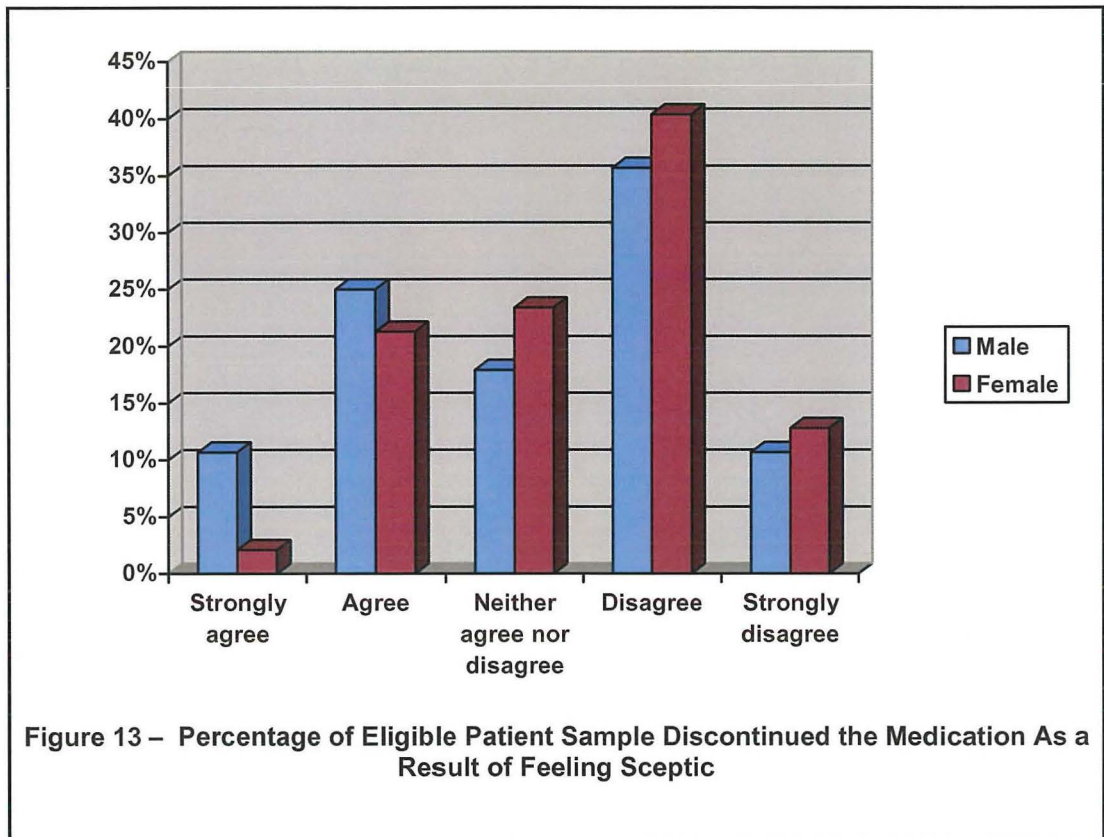
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	3	1	4
	% within Gender	10.7%	2.1%	5.3%
Agree	Count	7	10	17
	% within Gender	25.0%	21.3%	22.7%
Neither agree nor disagree	Count	5	11	16
	% within Gender	17.9%	23.4%	21.3%
Disagree	Count	10	19	29
	% within Gender	35.7%	40.4%	38.7%
Strongly disagree	Count	3	6	9
	% within Gender	10.7%	12.8%	12.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.948 ^a	4	.566
Likelihood Ratio	2.878	4	.579
Linear-by-Linear Association	1.252	1	.263
N of Valid Cases	75		

a. 3 cells (30.0%) have expected count less than 5.
The minimum expected count is 1.49.



$$X^2 (4) = 2.988, p = 0.566$$

Since the p-value (0.566) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding stopping the medication as a result of feeling sceptic.

4.4.5 Question 5

Figure 14 illustrates the percentage of the eligible patient sample that stopped their medication because they felt worse. Participants in this research study who admitted that they stopped taking any of their medication because they were feeling worse amounted to 44.7% females and 28.6% males. Furthermore, 21.4% males and 10.6% strongly agree with this statement. Participants who are uncertain whether they stopped taking any of their medication because they were feeling worse consisted of 14.9% females followed by 10.7% males, a difference of 4%. Further data reveals that 35.7% male respondents and 25.5% female respondents disagree that they stopped taking any of their medication because they were feeling worse. Moreover, the difference between females and males who strongly disagree with this statement is of only 0.7%.

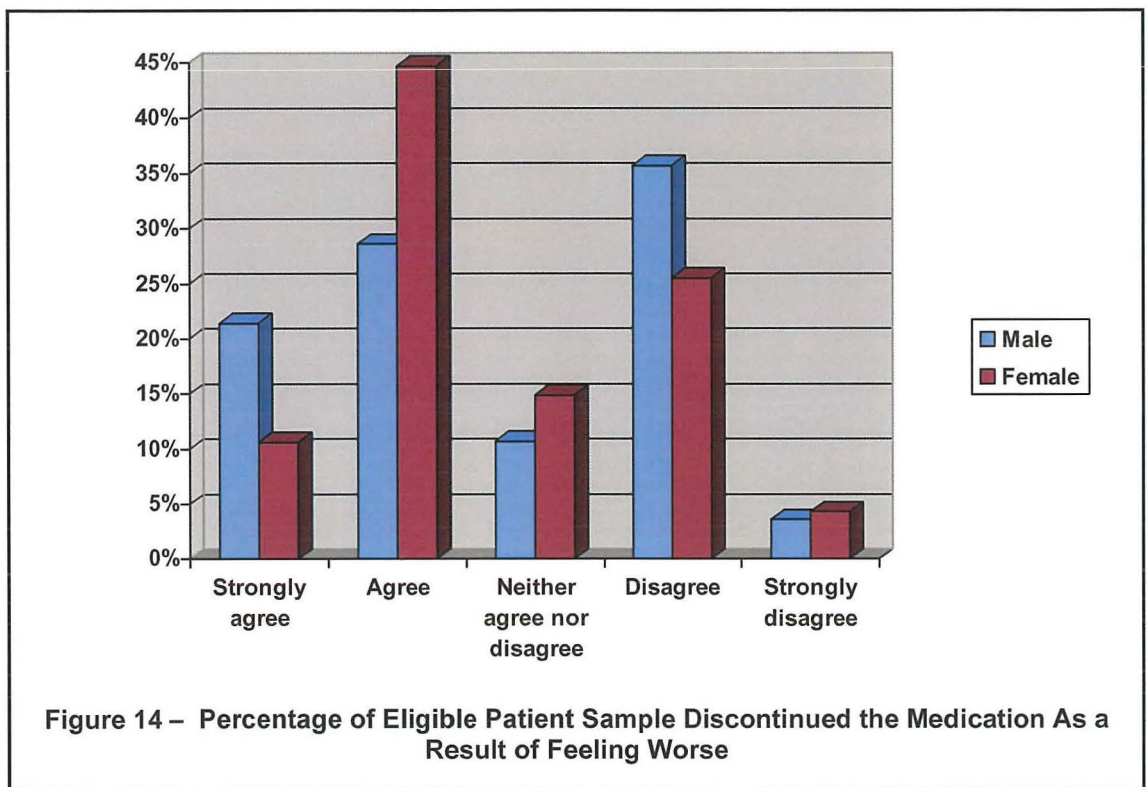
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	6	5	11
	% within Gender	21.4%	10.6%	14.7%
Agree	Count	8	21	29
	% within Gender	28.6%	44.7%	38.7%
Neither agree nor disagree	Count	3	7	10
	% within Gender	10.7%	14.9%	13.3%
Disagree	Count	10	12	22
	% within Gender	35.7%	25.5%	29.3%
Strongly disagree	Count	1	2	3
	% within Gender	3.6%	4.3%	4.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.441 ^a	4	.487
Likelihood Ratio	3.433	4	.488
Linear-by-Linear Association	.015	1	.904
N of Valid Cases	75		

a. 4 cells (40.0%) have expected count less than 5.
The minimum expected count is 1.12.



$$X^2 (4)=3.441, p=0.487$$

Since the p-value (0.487) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding stopping the medication as a result of feeling worse.

4.4.6 Question 6

Figure 15 shows the percentage of the eligible patient sample that stopped their medication due to fear of side effects. It is quite evident that the majority of males 57.1% who participated in this study agree that they stopped taking any of their medication due to fear of side effects as opposed to 27.7% female participants. By contrast, the percentage of male participants surpassed the percentage of female participants that strongly agree with this statement consisting of 14.3% females and 6.4% males. On the other hand, 36.2% females and 21.4% males disagree they stopped taking any of their medication due to fear of side effects while only 10.6% females as opposed to 0% male participants strongly disagree with this statement. Participants who are uncertain whether they stopped taking any of their medication due to fear of side effects amounted to 19.1% females and 7.1% males.

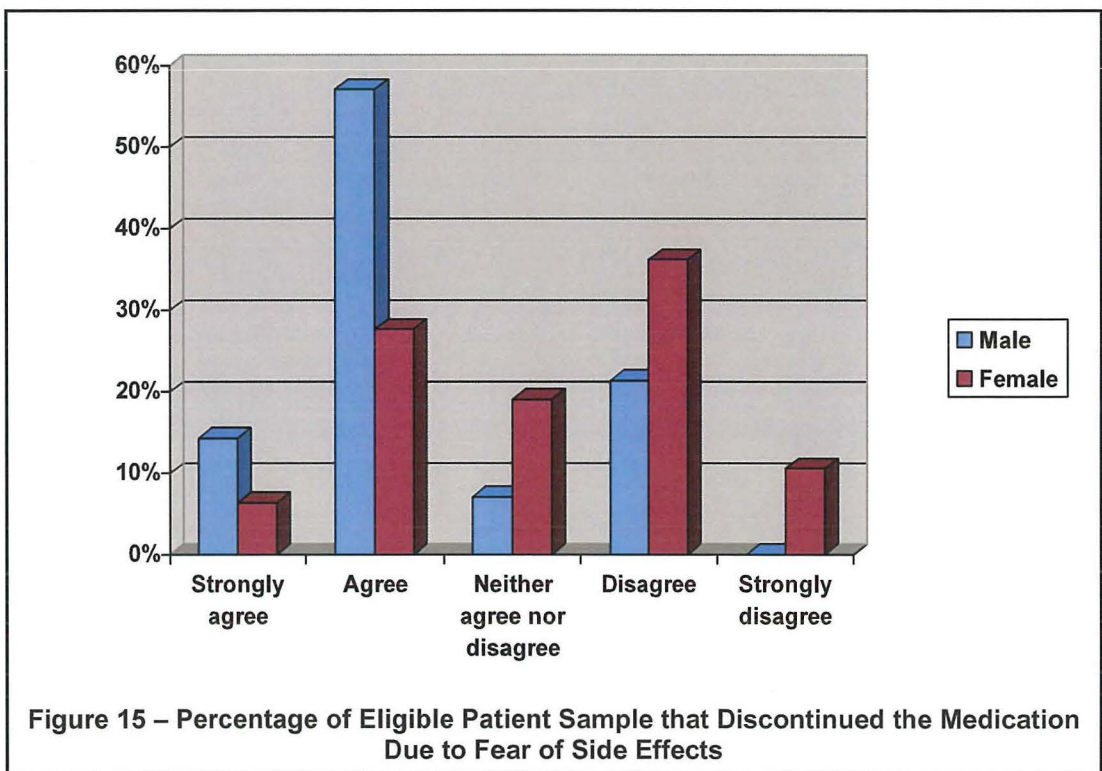
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	4	3	7
	% within Gender	14.3%	6.4%	9.3%
Agree	Count	16	13	29
	% within Gender	57.1%	27.7%	38.7%
Neither agree nor disagree	Count	2	9	11
	% within Gender	7.1%	19.1%	14.7%
Disagree	Count	6	17	23
	% within Gender	21.4%	36.2%	30.7%
Strongly disagree	Count	0	5	5
	% within Gender	0.0%	10.6%	6.7%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.065 ^a	4	.026
Likelihood Ratio	12.820	4	.012
Linear-by-Linear Association	8.700	1	.003
N of Valid Cases	75		

a. 5 cells (50.0%) have expected count less than 5.
The minimum expected count is 1.87.



$$X^2 (4)=11.065, p=0.026$$

Since the p-value (0.026) is less than 0.05 level of significance we can deduce that there is a significant gender discrepancy between males and females regarding stopping the medication due to fear of side effects. Hence, we can generalise that males are more likely to discontinue the medication due to fear of side effects.

4.4.7 Question 7

Figure 16 represents the percentage of the eligible patient sample that refer to the drug with its generic name. Data gathered from this research study clearly shows that the percentage of female respondents surpassed the percentage of male respondents in four out of five categories. There were 34% female participants as opposed to 32.1% male participants who disagreed that they refer to the drug with its generic name. On the other hand, 14.9% females and 14.3% males stated they strongly disagree with this statement. The difference between females and males in this category is only 0.6%. By contrast, 35.7% male participants agreed and 14.3% strongly agreed that they refer to the drug with its generic name as opposed to 19% and 14.9% female participants. Further data shows that 17% female participants and 3.6% male participants are uncertain whether they refer to the drug with its generic name.

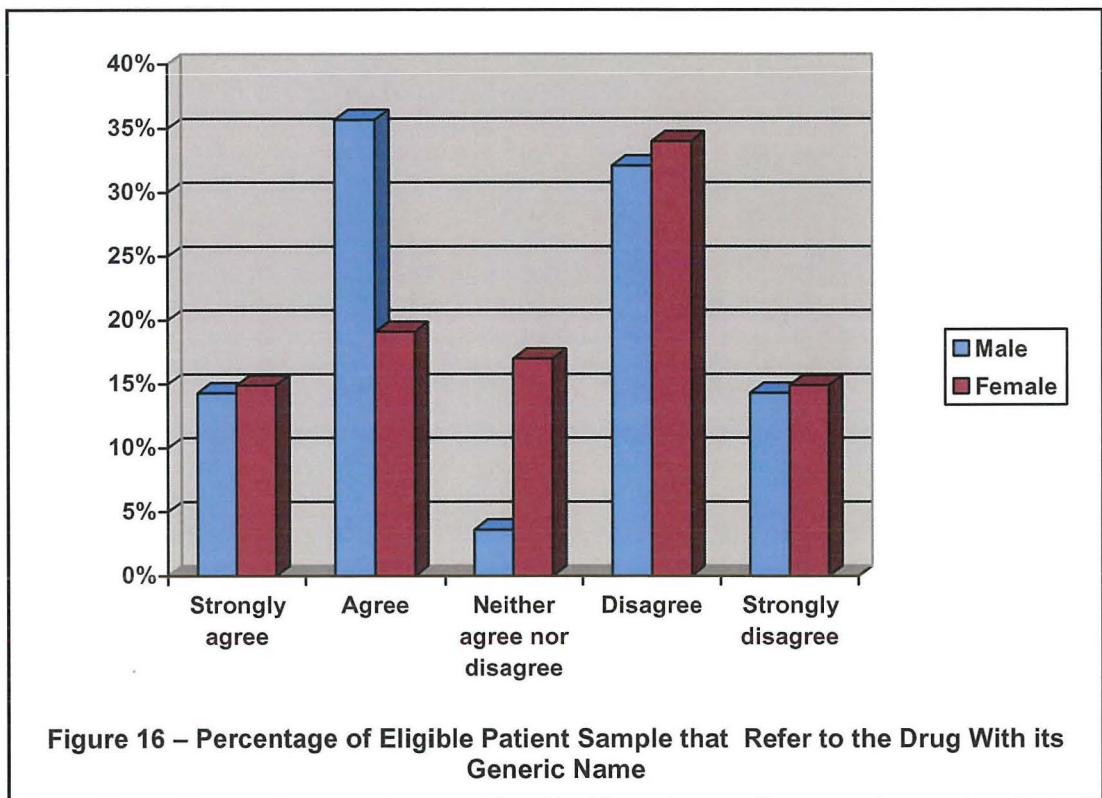
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	4	7	11
	% within Gender	14.3%	14.9%	14.7%
Agree	Count	10	9	19
	% within Gender	35.7%	19.1%	25.3%
Neither agree nor disagree	Count	1	8	9
	% within Gender	3.6%	17.0%	12.0%
Disagree	Count	9	16	25
	% within Gender	32.1%	34.0%	33.3%
Strongly disagree	Count	4	7	11
	% within Gender	14.3%	14.9%	14.7%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.574 ^a	4	.334
Likelihood Ratio	5.028	4	.284
Linear-by-Linear Association	.337	1	.562
N of Valid Cases	75		

a. 3 cells (30.0%) have expected count less than 5.
The minimum expected count is 3.36.



$\chi^2 (4)=4.574, p=0.334$

Since the p-value (0.334) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy in relation to referring to the drug with its generic name.

4.4.8 Question 8

Figure 17 shows the percentage of the eligible patient sample that experienced difficulty to buy any of their medication due to financial difficulties. Data from this research study reveals that 21.4% and 46.4% male respondents as opposed to 31.9% female respondents strongly agree/agree that they experienced difficulty to buy any of their medication due to financial constraints. By contrast, 17.9% males followed closely by 17% females stated they disagree with this statement. While none (0%) of the participants strongly disagreed with this statement. It is noteworthy that participants who are uncertain whether they experienced difficulty to buy any of their medication due to financial constraints consisted of 19.1% females and 14.3% males respectively.

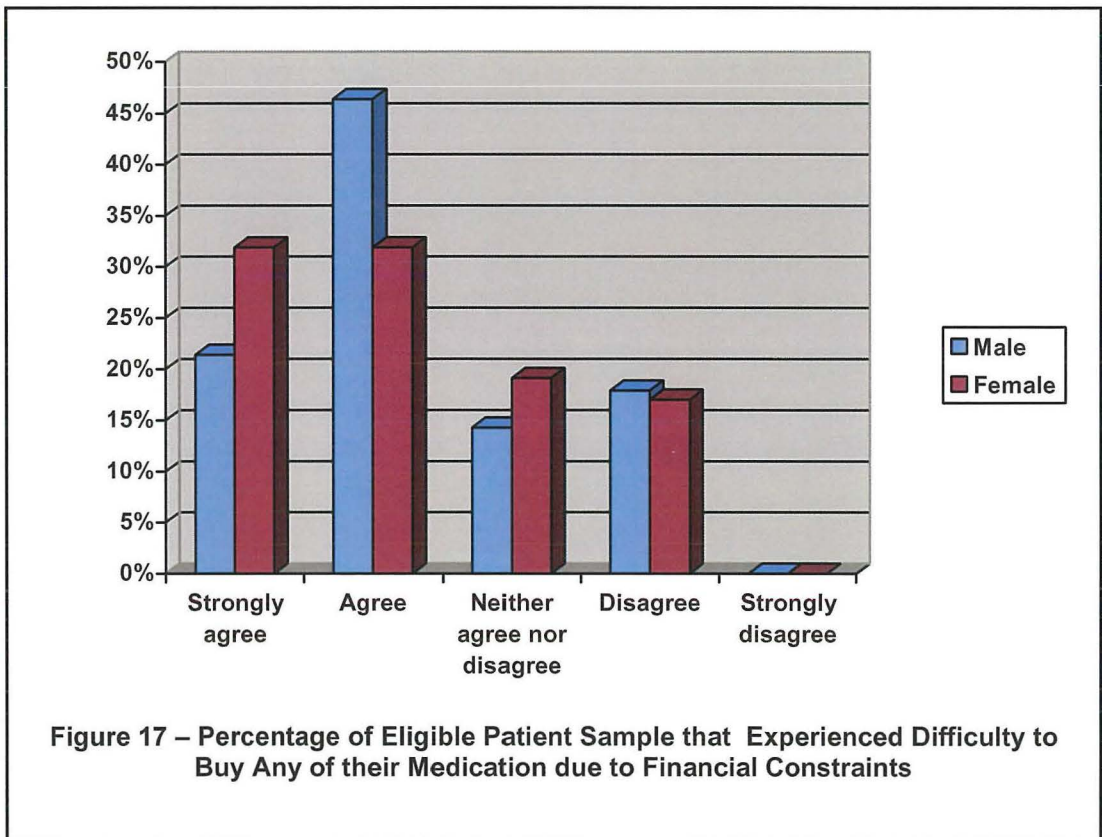
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	6	15	21
	% within Gender	21.4%	31.9%	28.0%
Agree	Count	13	15	28
	% within Gender	46.4%	31.9%	37.3%
Neither agree nor disagree	Count	4	9	13
	% within Gender	14.3%	19.1%	17.3%
Disagree	Count	5	8	13
	% within Gender	17.9%	17.0%	17.3%
Strongly disagree	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.926 ^a	3	.588
Likelihood Ratio	1.934	3	.586
Linear-by-Linear Association	.085	1	.771
N of Valid Cases	75		

a. 2 cells (25.0%) have expected count less than 5.
The minimum expected count is 4.85.



$$\chi^2 (4) = 1.926, p = 0.588$$

Since the p-value (0.588) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding experiencing difficulty to buy any of the medication due to financial constraints.

4.4.9 Question 9

Figure 18 illustrates the percentage of the eligible patient sample that considers buying a drug that falls under the POYC scheme should it be out of stock. The findings of this research study shows that 42.9% males and 27.7% females agree that they would consider buying a drug that falls under the POYC scheme, should it be out of stock. On the other hand, there were no participants that strongly agree with this statement. Furthermore, 27.7% females and 25% males disagreed that they consider buying a drug that falls under the POYC scheme which is out of stock. Additionally, 25.5% females and 17.9% males strongly disagree with this statement. Further data shows that 19.1% female respondents as opposed to 14.3% male respondents are uncertain whether they consider buying a drug that falls under the POYC scheme, should it be out of stock.

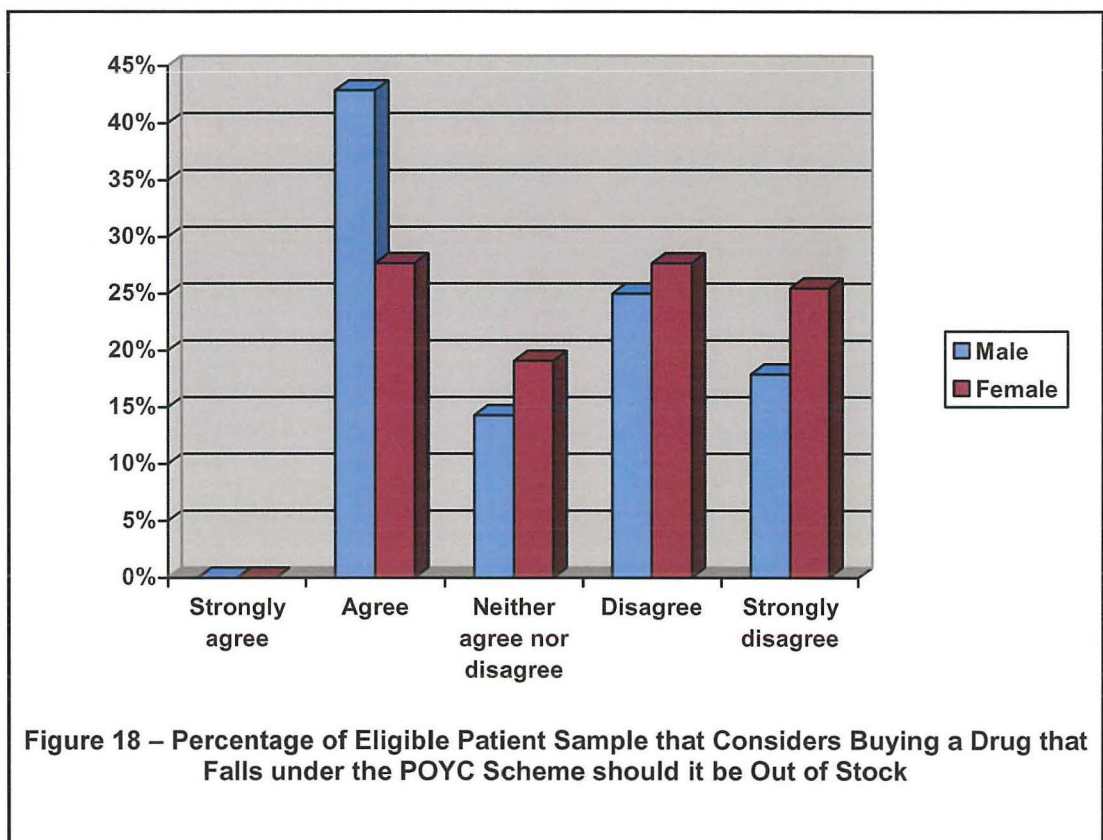
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	12	13	25
	% within Gender	42.9%	27.7%	33.3%
Agree	Count	4	9	13
	% within Gender	14.3%	19.1%	17.3%
Neither agree nor disagree	Count	7	13	20
	% within Gender	25.0%	27.7%	26.7%
Disagree	Count	5	12	17
	% within Gender	17.9%	25.5%	22.7%
Strongly disagree	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.958 ^a	3	.581
Likelihood Ratio	1.945	3	.584
Linear-by-Linear Association	1.407	1	.236
N of Valid Cases	75		

a. 1 cells (12.5%) have expected count less than 5.
The minimum expected count is 4.85.



$$X^2 (4)=1.958, p=0.581$$

Since the p-value (0.581) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding taking into consideration of buying a drug that falls under the POYC scheme should it be out of stock.

4.4.10 Question 10

Figure 19 represents the percentage of the eligible patient sample illustrating knowledge about the medication. The majority of male respondents (71.4%) and female respondents (63.8%) agree that they feel knowledgeable about their medication, while a further 14.9% female participants and 10.7% male participants strongly agree with this statement. By contrast, 12.8% females and 10.7% males in this study stated they do not feel knowledgeable about their medication. A further 7.1% male respondents and 6.4% females strongly disagree with this statement. On the other hand, only 2.1% of female respondents are uncertain about how knowledgeable they feel about their medication.

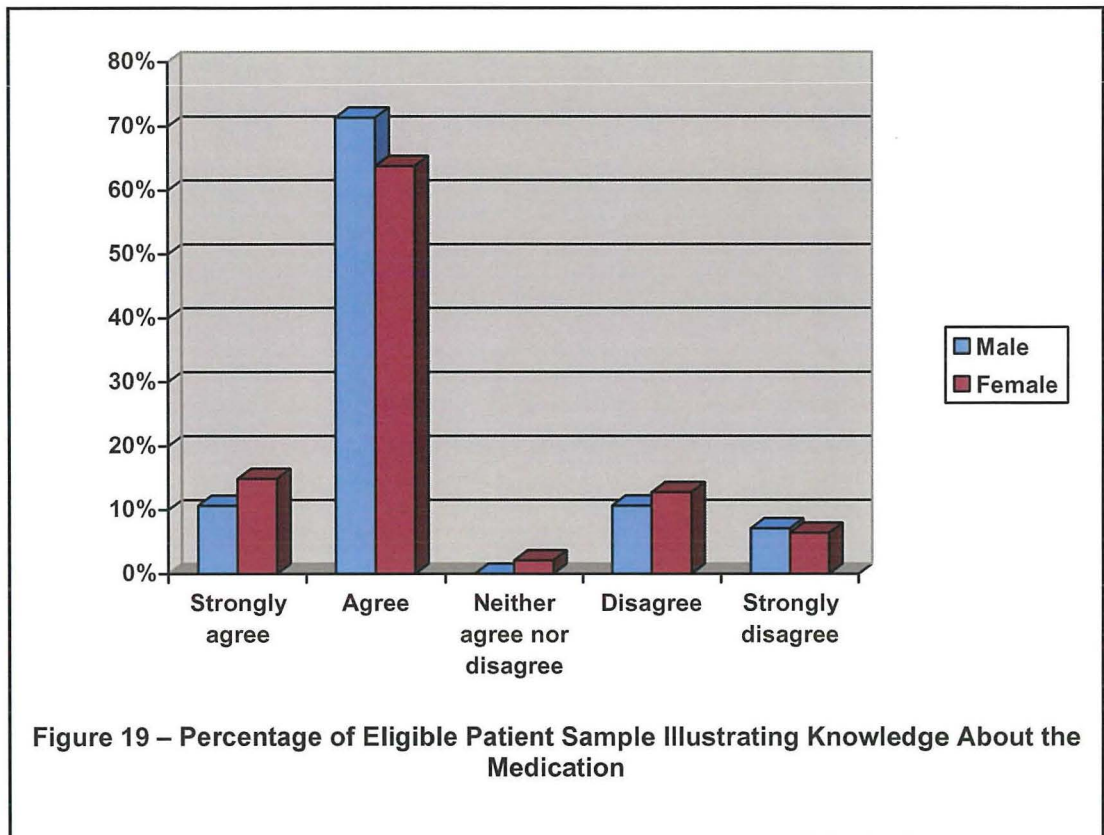
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	3	7	10
	% within Gender	10.7%	14.9%	13.3%
Agree	Count	20	30	50
	% within Gender	71.4%	63.8%	66.7%
Neither agree nor disagree	Count	0	1	1
	% within Gender	0.0%	2.1%	1.3%
Disagree	Count	3	6	9
	% within Gender	10.7%	12.8%	12.0%
Strongly disagree	Count	2	3	5
	% within Gender	7.1%	6.4%	6.7%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.054 ^a	4	.901
Likelihood Ratio	1.400	4	.844
Linear-by-Linear Association	.000	1	.993
N of Valid Cases	75		

a. 6 cells (60.0%) have expected count less than 5.
The minimum expected count is .37.



$$X^2 (4) = 1.054, p = 0.901$$

Since the p-value (0.901) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding illustrating knowledge about the medication.

4.4.11 Question 11

Figure 20 describes the percentage of the eligible patient sample that encountered difficulty to go to the pharmacy. The findings of this research study indicate that 40.4% of the females and 21.4% males agree they encountered difficulty to go to the pharmacy while, a further 32.1% males and 21.3% females strongly agree with this statement. Moreover, 25% and 21.4% males as opposed to 17% and 19.1% females disagree/strongly disagree they encountered difficulty to go to the pharmacy. It is noteworthy that only 2.1% female participants are not sure with this statement.

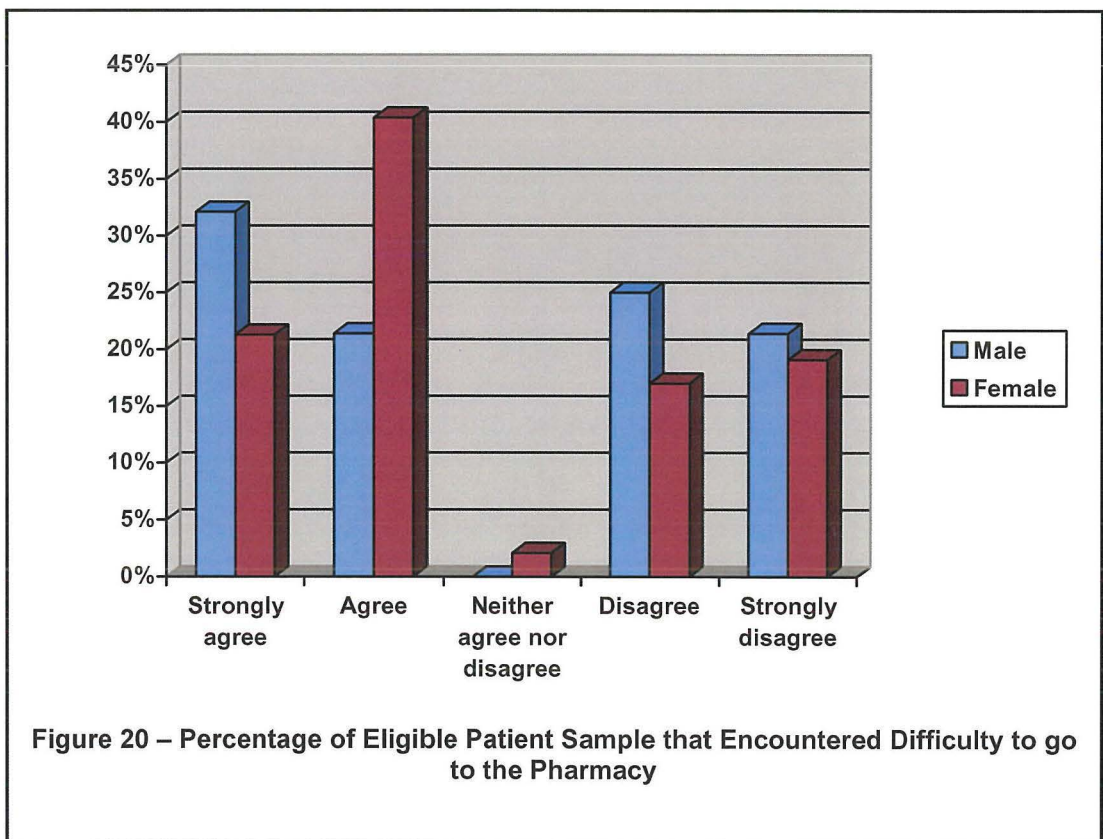
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	9	10	19
	% within Gender	32.1%	21.3%	25.3%
Agree	Count	6	19	25
	% within Gender	21.4%	40.4%	33.3%
Neither agree nor disagree	Count	0	1	1
	% within Gender	0.0%	2.1%	1.3%
Disagree	Count	7	8	15
	% within Gender	25.0%	17.0%	20.0%
Strongly disagree	Count	6	9	15
	% within Gender	21.4%	19.1%	20.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.917 ^a	4	.417
Likelihood Ratio	4.347	4	.361
Linear-by-Linear Association	.073	1	.787
N of Valid Cases	75		

a. 2 cells (20.0%) have expected count less than 5.
The minimum expected count is .37.



$$X^2 (4)=3.917, p=0.417$$

Since the p-value (0.417) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding encountering difficulty to go to the pharmacy.

4.4.12 Question 12

Figure 21 describes the percentage of the eligible patient sample that encountered difficulty reading medication labels due to small print. This study shows that the difference, between females and males that disagree they encountered difficulty reading medication labels due to small print, is of only 1.2%. On the other hand, the difference between males and females who strongly disagree is of 16.5%. By contrast, the difference in females and male respondents that strongly agree they encountered difficulty reading medication labels due to small print is of 15.5% as opposed to 0.3% of males and females who strongly agree with this statement. It is interesting to note that none (0%) of the participants marked uncertain.

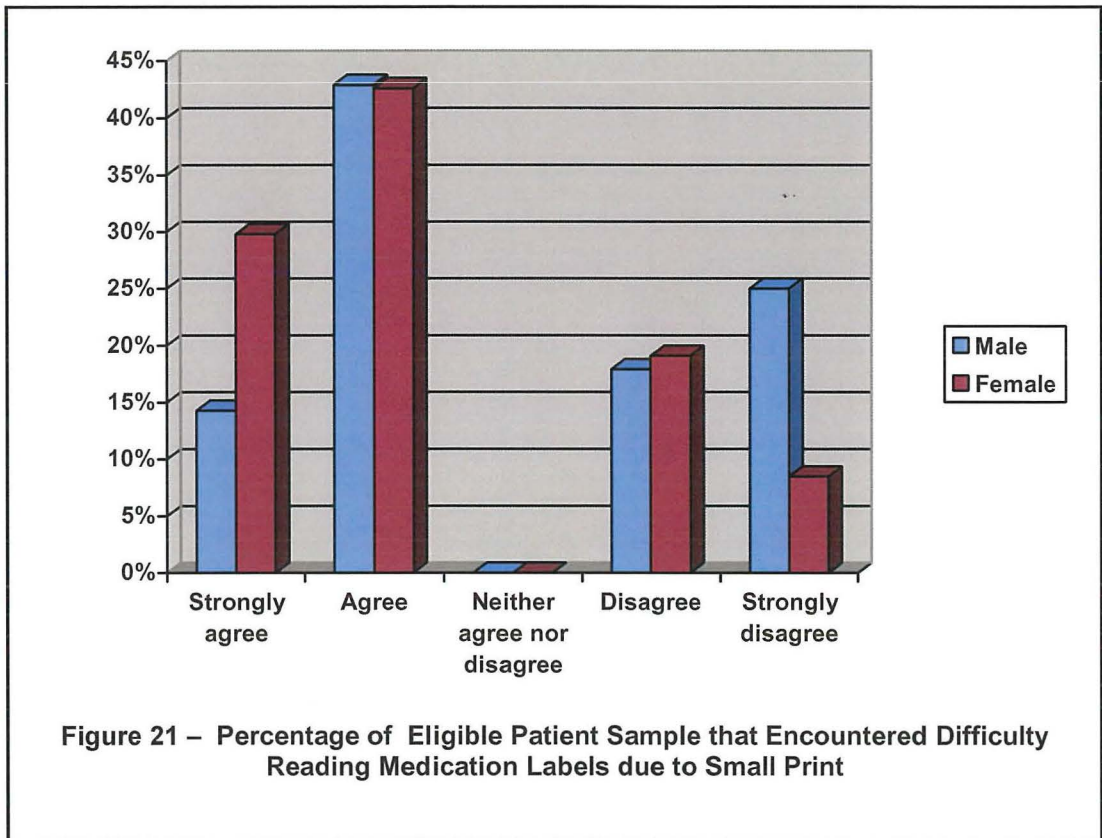
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	4	14	18
	% within Gender	14.3%	29.8%	24.0%
Agree	Count	12	20	32
	% within Gender	42.9%	42.6%	42.7%
Neither agree nor disagree	Count	5	9	14
	% within Gender	17.9%	19.1%	18.7%
Disagree	Count	7	4	11
	% within Gender	25.0%	8.5%	14.7%
Strongly disagree	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.026 ^a	3	.170
Likelihood Ratio	5.027	3	.170
Linear-by-Linear Association	3.407	1	.065
N of Valid Cases	75		

a. 1 cells (12.5%) have expected count less than 5.
The minimum expected count is 4.11.



$$\chi^2 (4) = 5.026, p = 0.170$$

Since the p-value (0.170) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding encountering difficulty reading medication labels due to small print.

4.4.13 Question 13

Figure 22 represents the percentage of the eligible patient sample that encountered difficulty in following instructions. It is quite evident that there are more females (42.6%) who agreed that they encountered difficulty in following instructions as opposed to 35.7% male participants. On the other hand, 32.1% males and 29.8% females stated that they disagree with this statement. A further 25% male participants as opposed to 14.9% female participants also stated they strongly disagree that they encountered difficulty in following instructions. By contrast, the percentage of female participants surpassed the percentage of male participants that strongly agree with this statement consisting of 8.5% females and 3.6% males. Moreover the participants who are uncertain whether they encountered difficulty in following instructions was made up of 4.3% females and 3.6% males respectively.

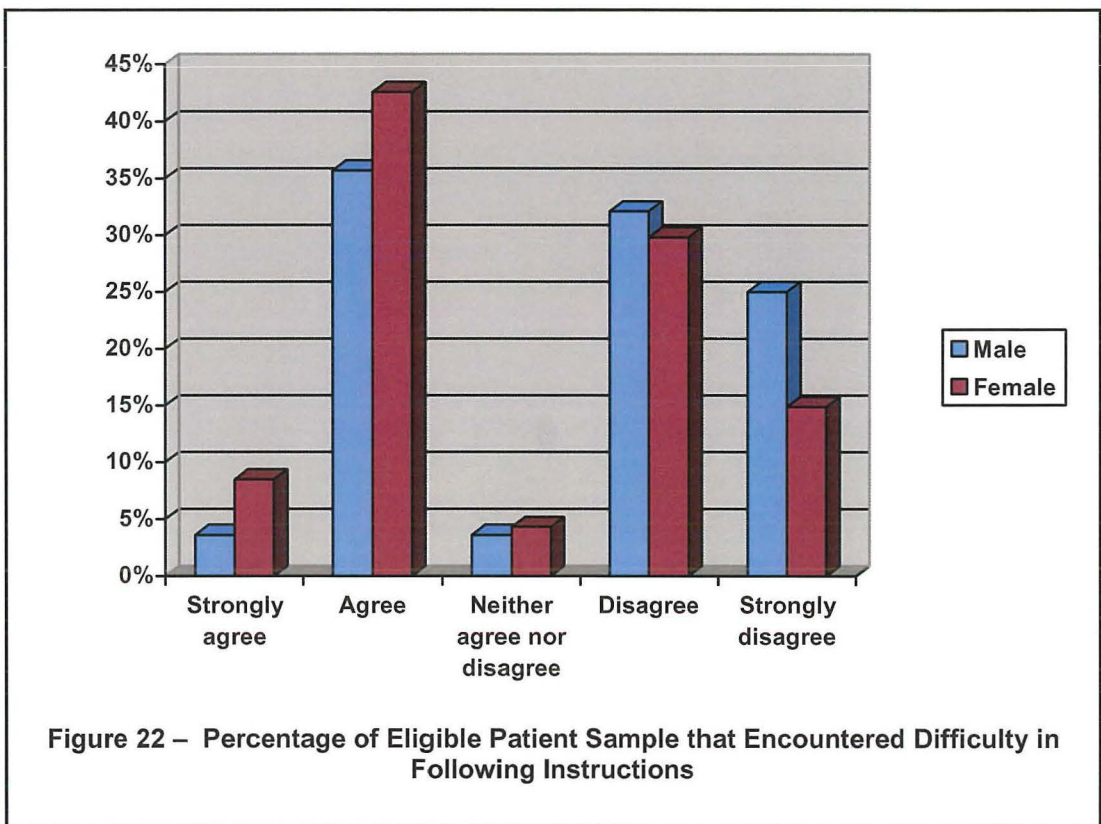
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	1	4	5
	% within Gender	3.6%	8.5%	6.7%
Agree	Count	10	20	30
	% within Gender	35.7%	42.6%	40.0%
Neither agree nor disagree	Count	1	2	3
	% within Gender	3.6%	4.3%	4.0%
Disagree	Count	9	14	23
	% within Gender	32.1%	29.8%	30.7%
Strongly disagree	Count	7	7	14
	% within Gender	25.0%	14.9%	18.7%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.860 ^a	4	.762
Likelihood Ratio	1.895	4	.755
Linear-by-Linear Association	1.573	1	.210
N of Valid Cases	75		

a. 4 cells (40.0%) have expected count less than 5.
The minimum expected count is 1.12.



$\chi^2 (4)=1.860, p=0.762$

Since the p-value (0.762) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy in relation to encountering difficulty in following instructions.

4.4.14 Question 14

Figure 23 shows the percentage of the patient eligible sample that experienced difficulty in opening the drug container/packaging. Data gathered from this research study clearly shows that the percentage of male respondents surpassed the percentage of female respondents in four out of five categories. In fact there were 39.3% and 35.7% male participants as opposed to a total of 59.6% females that disagree and strongly disagree that experienced difficulty in opening the drug container/packaging. By contrast, 34% females and 14.3% males agree with this statement followed by 7.1% males and 4.3% females who strongly agree that they experienced difficulty in opening the drug container/packaging. Further data shows that only 2.1% female participants and 3.6% male participants are uncertain with this statement.

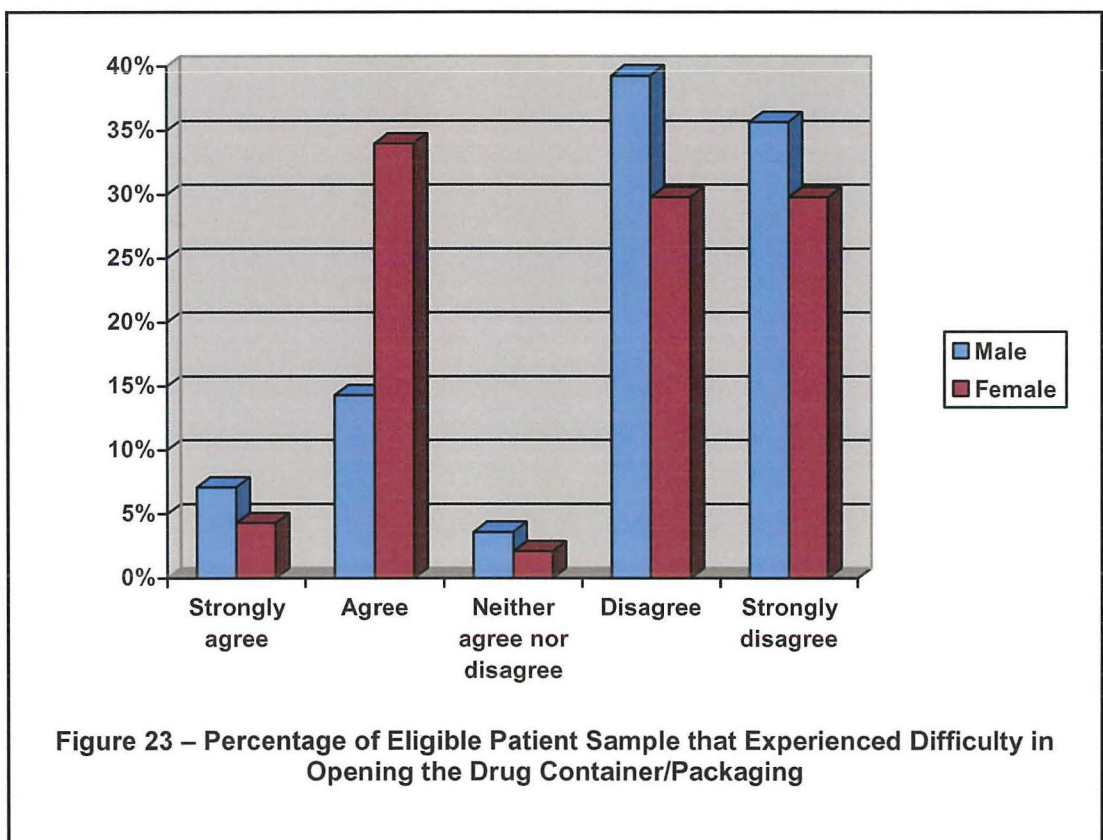
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	2	2	4
	% within Gender	7.1%	4.3%	5.3%
Agree	Count	4	16	20
	% within Gender	14.3%	34.0%	26.7%
Neither agree nor disagree	Count	1	1	2
	% within Gender	3.6%	2.1%	2.7%
Disagree	Count	11	14	25
	% within Gender	39.3%	29.8%	33.3%
Strongly disagree	Count	10	14	24
	% within Gender	35.7%	29.8%	32.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.647 ^a	4	.456
Likelihood Ratio	3.874	4	.423
Linear-by-Linear Association	1.247	1	.264
N of Valid Cases	75		

a. 4 cells (40.0%) have expected count less than 5.
The minimum expected count is .75.



$$X^2 (4)=3.647, p=0.456$$

Since the p-value (0.456) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy in relation to experiencing difficulty in opening the drug container/packaging.

4.4.15 Question 15

Figure 24 illustrates the percentage of the eligible patient sample that encountered difficulty to distinguish tablets which look similar in size. This research study shows that the difference between females and males that disagree they encountered difficulty to distinguish tablets which look similar in size is of 11.8%. On the other hand, the difference between females and males who strongly disagree is of 8%. By contrast, the difference in female and male respondents that agree they encountered difficulty to distinguish tablets which look similar in size is of 6.5% while, a further 2.1% females and 0% males strongly agree with this statement. It is interesting to note that the participants who are uncertain whether they encountered difficulty to distinguish tablets which look similar in size is made up of 4.3% females and 3.6% males the difference being of only 0.7%.

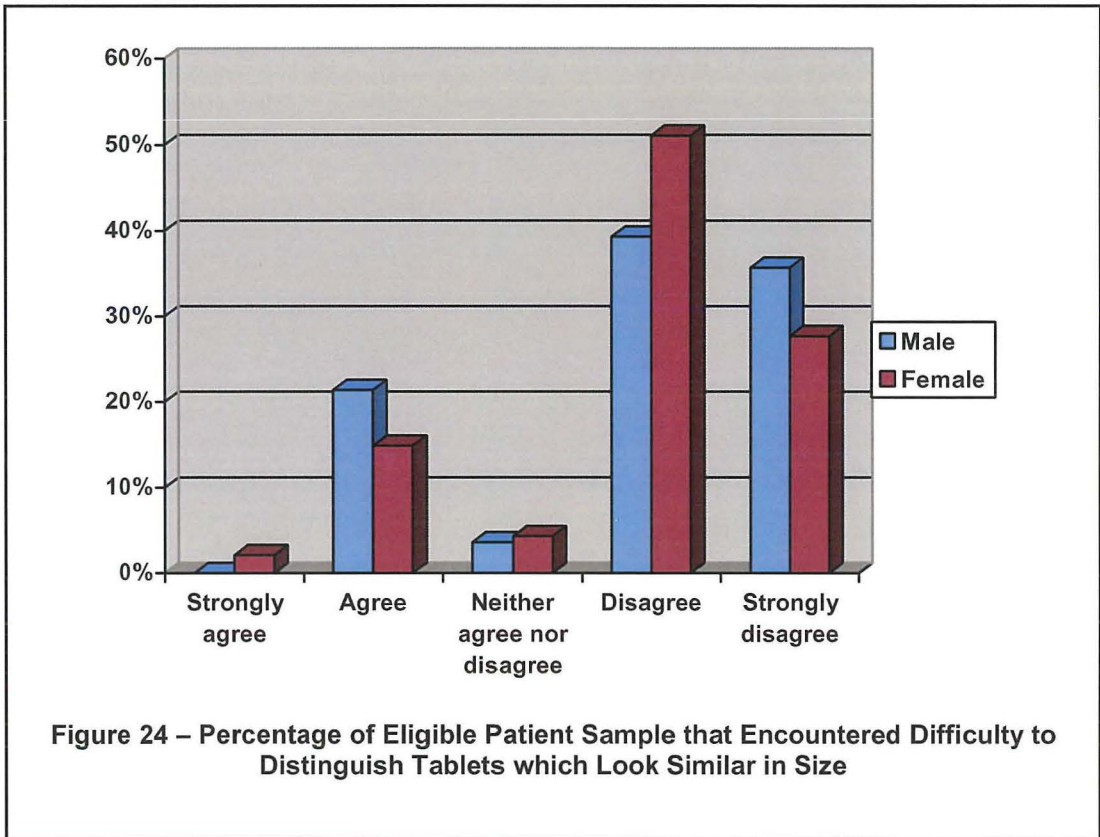
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	0	1	1
	% within Gender	0.0%	2.1%	1.3%
Agree	Count	6	7	13
	% within Gender	21.4%	14.9%	17.3%
Neither agree nor disagree	Count	1	2	3
	% within Gender	3.6%	4.3%	4.0%
Disagree	Count	11	24	35
	% within Gender	39.3%	51.1%	46.7%
Strongly disagree	Count	10	13	23
	% within Gender	35.7%	27.7%	30.7%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.941 ^a	4	.747
Likelihood Ratio	2.276	4	.685
Linear-by-Linear Association	.006	1	.936
N of Valid Cases	75		

a. 5 cells (50.0%) have expected count less than 5.
The minimum expected count is .37.



$\chi^2 (4)=1.941, p=0.747$

Since the p-value (0.747) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding encountering difficulty to distinguish tablets which look similar in size.

4.4.16 Question 16

Figure 25 presents the percentage of the eligible patient sample according to whether the size of the medication matters in relation to medication-taking. Findings from this research study clearly shows that the majority of female participants (57.4%) as opposed to male participants (35.7%) strongly agree that the size of the drug affects them with regards to their medication-taking while, a further 28.6% male participants and 12.8% female participants are in agreement with this statement. On the other hand, 21.4% males and 14.9% females disagree that the size of the drug affects them with regards to their medication as opposed to 14.3% males and 12.8% females who strongly disagree with this statement. It is noteworthy that none (0%) of the male participants as opposed to 2.1% female participants were uncertain whether the size of the drug affects them in relation to their medication-taking.

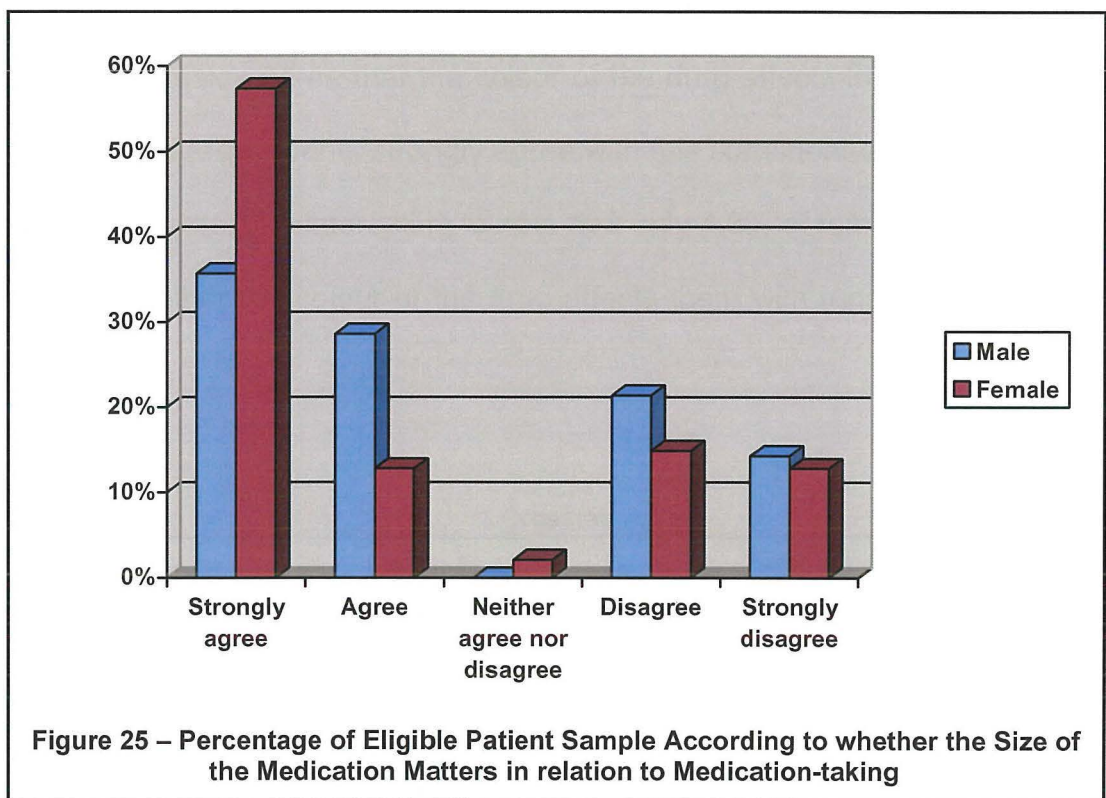
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	10	27	37
	% within Gender	35.7%	57.4%	49.3%
Agree	Count	8	6	14
	% within Gender	28.6%	12.8%	18.7%
Neither agree nor disagree	Count	0	1	1
	% within Gender	0.0%	2.1%	1.3%
Disagree	Count	6	7	13
	% within Gender	21.4%	14.9%	17.3%
Strongly disagree	Count	4	6	10
	% within Gender	14.3%	12.8%	13.3%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.087 ^a	4	.279
Likelihood Ratio	5.398	4	.249
Linear-by-Linear Association	1.031	1	.310
N of Valid Cases	75		

a. 4 cells (40.0%) have expected count less than 5.
The minimum expected count is .37.



$$X^2 (4)=5.087, p=0.279$$

Since the p-value (0.279) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding whether the size of the medication matters in relation to medication-taking.

4.4.17 Question 17

Figure 26 illustrates the percentage of the eligible patient sample according to whether the colour of the medication matters in relation to medication-taking. It is quite evident that in this research study, the male respondents (42.9%) surpassed the percentage of female respondents (27.7%) who strongly disagree that the colour of the drug affects them in relation to medication-taking. In addition, 38.3% females and 32.1% males disagree with this statement. By contrast, 17.9% males and 12.8% females agree that the colour of the drug affects them while, a further 17% of female respondents strongly agree with this statement as opposed to 7.1% male respondents. It is interesting to note that only 4.3% of female participants are uncertain whether the colour of the drug affects them with regards to medication-taking.

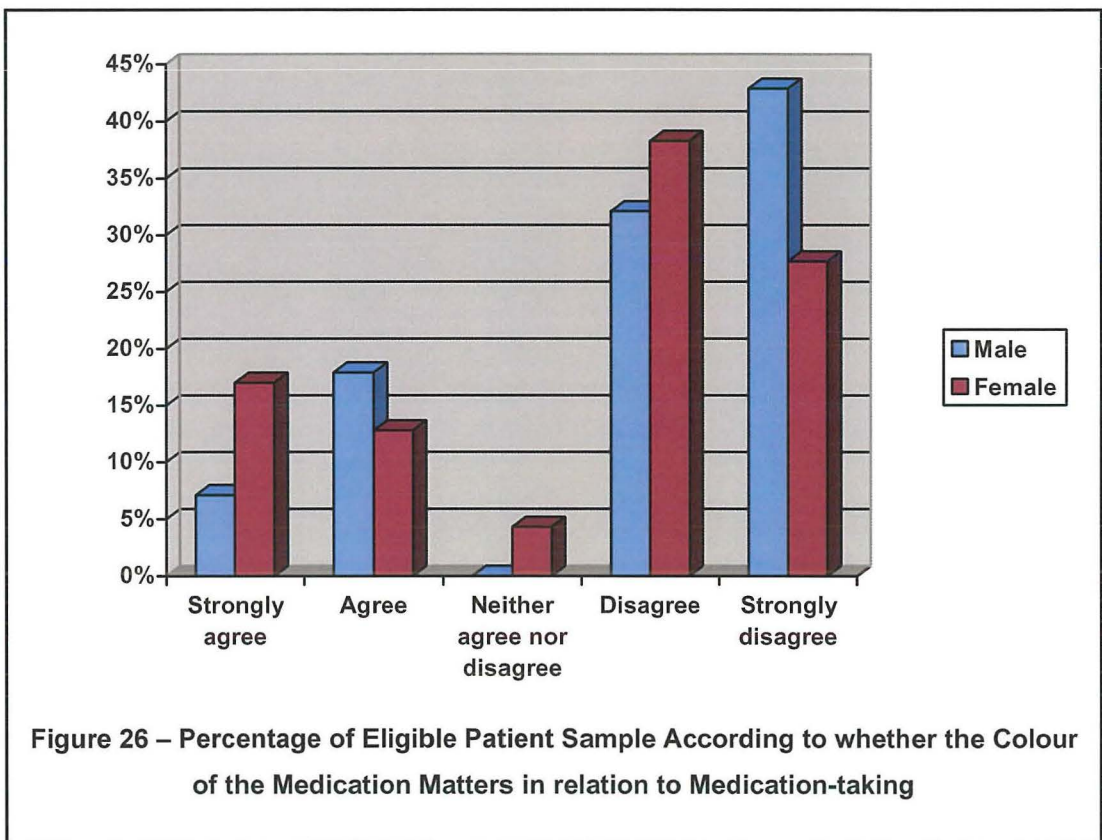
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	2	8	10
	% within Gender	7.1%	17.0%	13.3%
Agree	Count	5	6	11
	% within Gender	17.9%	12.8%	14.7%
Neither agree nor disagree	Count	0	2	2
	% within Gender	0.0%	4.3%	2.7%
Disagree	Count	9	18	27
	% within Gender	32.1%	38.3%	36.0%
Strongly disagree	Count	12	13	25
	% within Gender	42.9%	27.7%	33.3%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.186 ^a	4	.381
Likelihood Ratio	4.951	4	.292
Linear-by-Linear Association	1.312	1	.252
N of Valid Cases	75		

a. 4 cells (40.0%) have expected count less than 5.
The minimum expected count is .75.



$$X^2 (4)=4.186, p=0.381$$

Since the p-value (0.381) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding whether the colour of the medication matters in relation to medication-taking.

4.4.18 Question 18

Figure 27 shows the percentage of the eligible patient sample according to whether the shape of the medication matters in relation to medication-taking. Data gathered in this research study shows that 34% females followed closely by 32.1% males disagree that the shape of the drug affects them with regards to their medication-taking. On the other hand, the percentage of male participants who strongly disagree with this statement surpassed the percentage of female participants with 32.1% males as opposed to 25.5% females. Moreover, 21.4% males and 14.9% females stated that they agree that the shape of the drug affects them while, a further 21.3% of females and 14.3% males strongly agree with this statement. It is interesting to note that none (0%) of the males were uncertain in their response as opposed to 4.3% females who were uncertain whether the shape of the drug affects them with regards to their medication-taking.

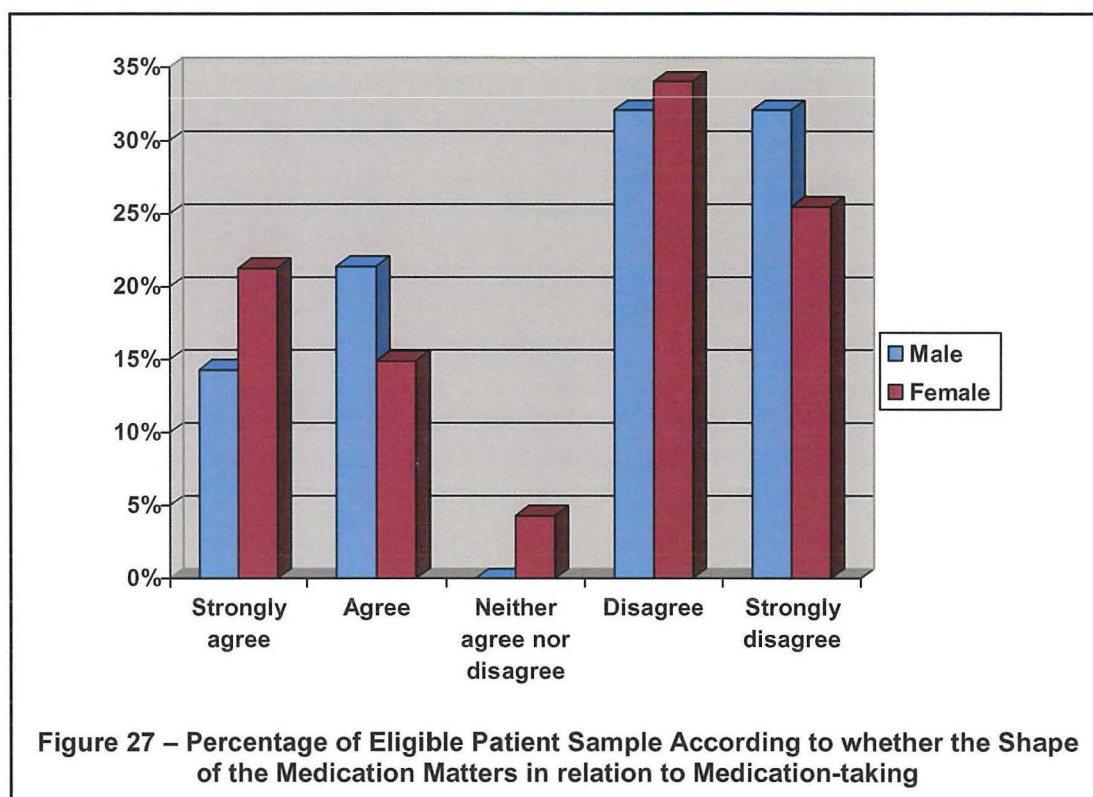
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	4	10	14
	% within Gender	14.3%	21.3%	18.7%
Agree	Count	6	7	13
	% within Gender	21.4%	14.9%	17.3%
Neither agree nor disagree	Count	0	2	2
	% within Gender	0.0%	4.3%	2.7%
Disagree	Count	9	16	25
	% within Gender	32.1%	34.0%	33.3%
Strongly disagree	Count	9	12	21
	% within Gender	32.1%	25.5%	28.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.376 ^a	4	.667
Likelihood Ratio	3.056	4	.548
Linear-by-Linear Association	.271	1	.603
N of Valid Cases	75		

a. 3 cells (30.0%) have expected count less than 5.
The minimum expected count is .75.



$$X^2 (4)=2.376, p=0.667$$

Since the p-value (0.667) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding whether the shape of the medication matters in relation to medication-taking.

4.4.19 Question 19

Figure 28 shows the percentage of the eligible patient sample according to whether the taste of the medication matters in relation to medication-taking. From this research study, 36.2% of female participants and 32.1% of male participants disagree that the taste of the drug affects them with regards to their medication-taking, while, a further 32.1% males as opposed to 25.5% females strongly disagree with this statement. By contrast, only 7.1% male respondents strongly agree that the taste of the drug affects them as opposed to 21.3% females. Furthermore, 25% males and 14.9% females were in an agreement with this statement whereas only 2.1% females and 3.6% males are uncertain whether the taste of the drug affects them in relation to their medication-taking.

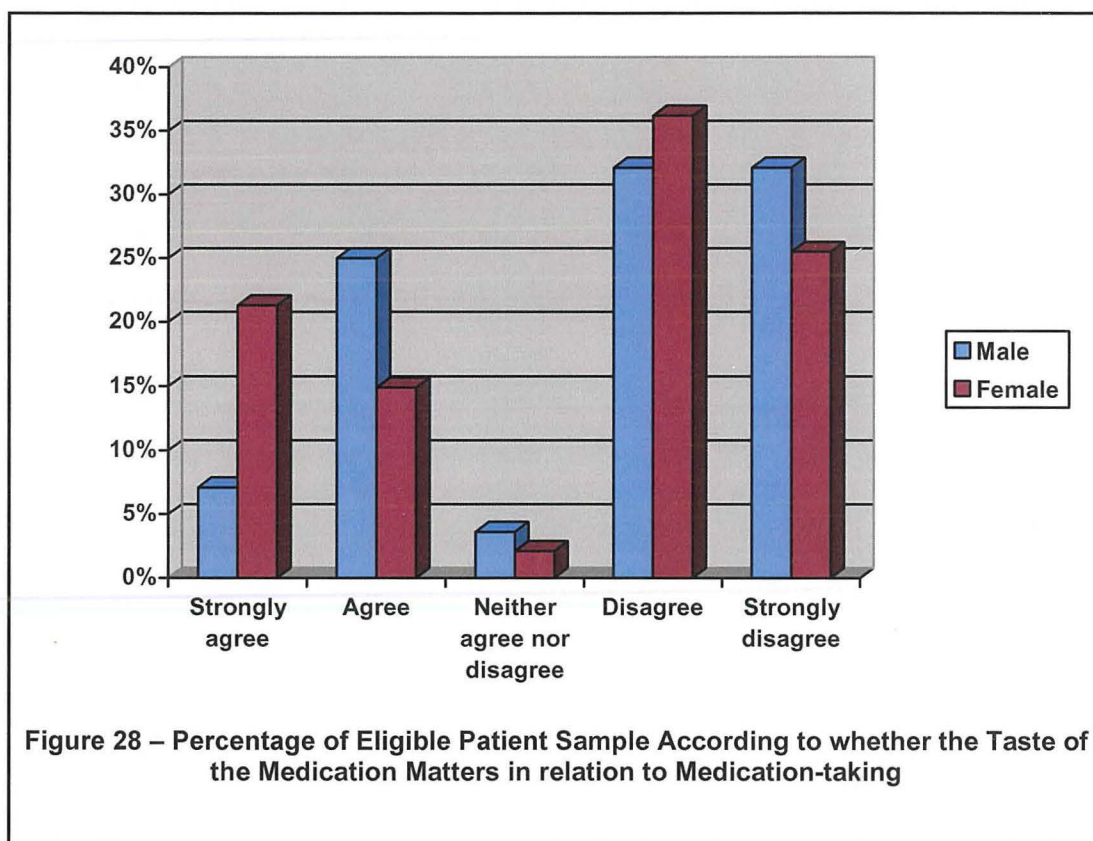
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	2	10	12
	% within Gender	7.1%	21.3%	16.0%
Agree	Count	7	7	14
	% within Gender	25.0%	14.9%	18.7%
Neither agree nor disagree	Count	1	1	2
	% within Gender	3.6%	2.1%	2.7%
Disagree	Count	9	17	26
	% within Gender	32.1%	36.2%	34.7%
Strongly disagree	Count	9	12	21
	% within Gender	32.1%	25.5%	28.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.644 ^a	4	.456
Likelihood Ratio	3.888	4	.421
Linear-by-Linear Association	.607	1	.436
N of Valid Cases	75		

a. 3 cells (30.0%) have expected count less than 5.
The minimum expected count is .75.



$$X^2 (4)=3.644, p=0.456$$

Since the p-value (0.456) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding whether the taste of the medication matters in relation to medication-taking.

4.4.20 Question 20

Figure 29 represents the percentage of the eligible patient sample that took any of their medication in smaller doses than prescribed. The data of this research study shows that 46.4% male respondents and 27.7% female respondents disagree that there were times when they took any of their medication in smaller doses than prescribed while a further 23.4% females and 14.3% males strongly disagree with this statement. By contrast, 25% males as opposed to 12.8% females agree that there were times when they took any of their medication in smaller doses than prescribed. It is interesting to note that only 2.1% female participants and 3.6% male participants strongly agree with this statement. On the other hand, the percentage of female participants (25.5%) surpassed the percentage of male participants (10.7%) that are not sure whether there were times when they took any of their medication in smaller doses than prescribed.

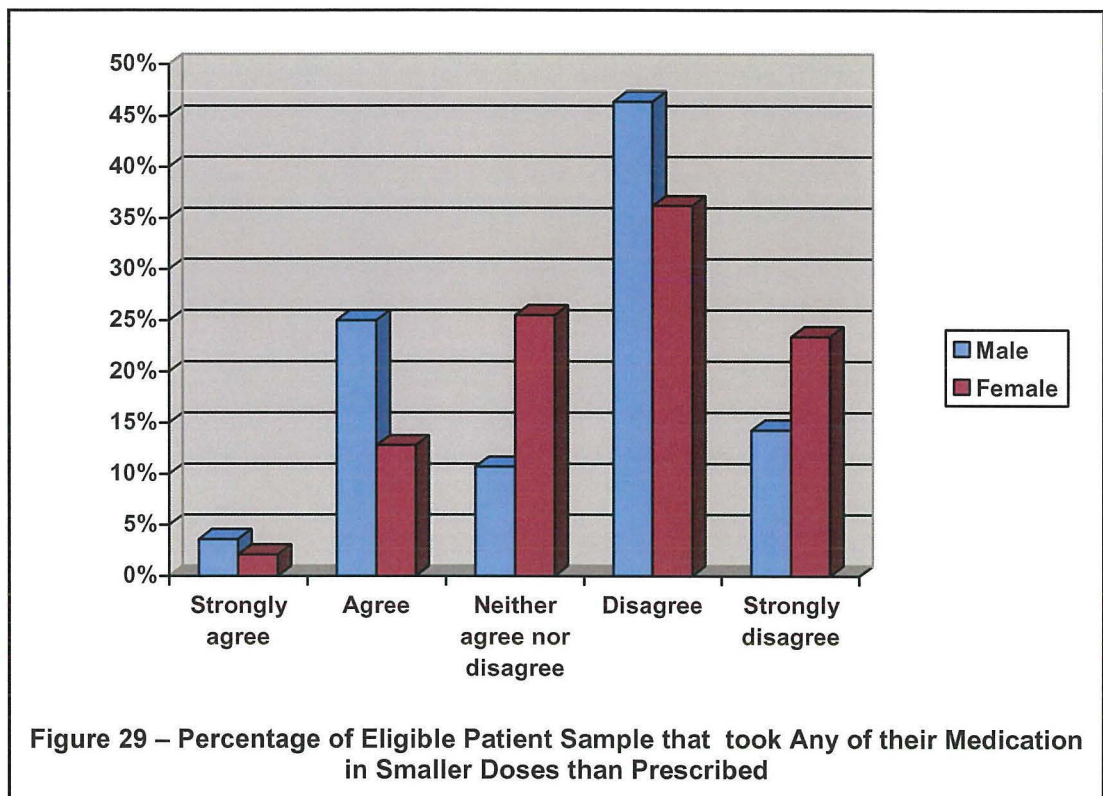
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	1	1	2
	% within Gender	3.6%	2.1%	2.7%
Agree	Count	7	6	13
	% within Gender	25.0%	12.8%	17.3%
Neither agree nor disagree	Count	3	12	15
	% within Gender	10.7%	25.5%	20.0%
Disagree	Count	13	17	30
	% within Gender	46.4%	36.2%	40.0%
Strongly disagree	Count	4	11	15
	% within Gender	14.3%	23.4%	20.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.770 ^a	4	.312
Likelihood Ratio	4.925	4	.295
Linear-by-Linear Association	.802	1	.370
N of Valid Cases	75		

a. 3 cells (30.0%) have expected count less than 5.
The minimum expected count is .75.



$$\chi^2 (4) = 4.770, p = 0.312$$

Since the p-value (0.312) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding taking any of the medication in smaller doses than prescribed.

4.4.21 Question 21

Figure 30 presents the percentage of the eligible patient sample that took any of their medication less frequently than prescribed. It is quite evident that 50% male respondents who participated in this research study as opposed to 27.7% female respondents disagree that there were times when they took any of their medication less frequently than prescribed. On the other hand, 23.4% females and 14.3% males strongly disagree with this statement. Further data shows the difference between females and males that agree there were times when they took any of their medication less frequently than prescribed is of 4.3% as opposed to 3.6% that strongly agree with this statement. It is noteworthy that there are more females (17%) than males (10.7%) who are uncertain whether there were times when they took any of their medication less frequently than prescribed.

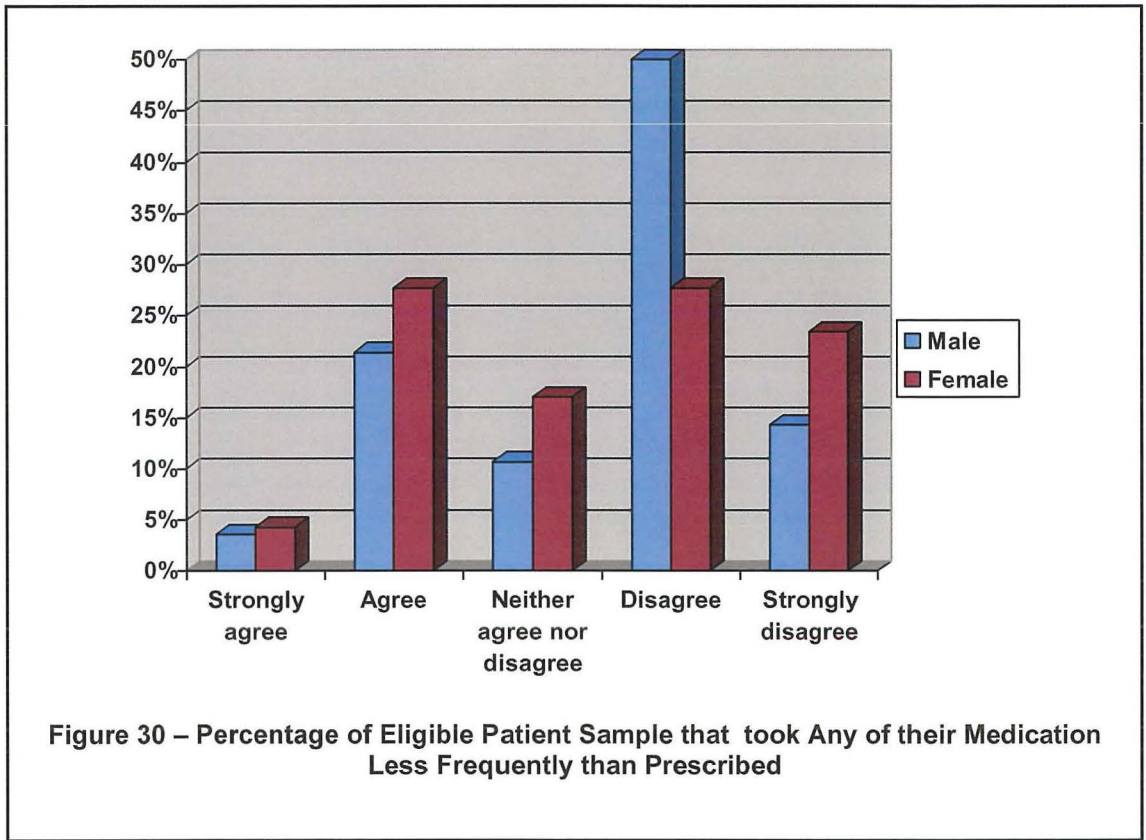
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	1	2	3
	% within Gender	3.6%	4.3%	4.0%
Agree	Count	6	13	19
	% within Gender	21.4%	27.7%	25.3%
Neither agree nor disagree	Count	3	8	11
	% within Gender	10.7%	17.0%	14.7%
Disagree	Count	14	13	27
	% within Gender	50.0%	27.7%	36.0%
Strongly disagree	Count	4	11	15
	% within Gender	14.3%	23.4%	20.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.927 ^a	4	.416
Likelihood Ratio	3.907	4	.419
Linear-by-Linear Association	.170	1	.680
N of Valid Cases	75		

a. 3 cells (30.0%) have expected count less than 5.
The minimum expected count is 1.12.



Since the p-value (0.416) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding taking any of the medication less frequently than prescribed.

4.4.22 Question 22

Figure 31 shows the percentage of the eligible patient sample that accidentally skipped taking any of the medication. 46.8% female respondents and 32.1% male respondents who participated in this study disagree that they accidentally skipped taking any of the medication, while a further 21.4% males and 19.1% females strongly disagree with this statement. By contrast, 28.6% males and 21.3% females agree that they accidentally skipped taking any of the medication while, a further 10.7% male respondents and 4.3% female respondents strongly agree with this statement. On the other hand, the difference between females and males who are uncertain whether that they accidentally skipped taking any of the medication is of only 1.4%.

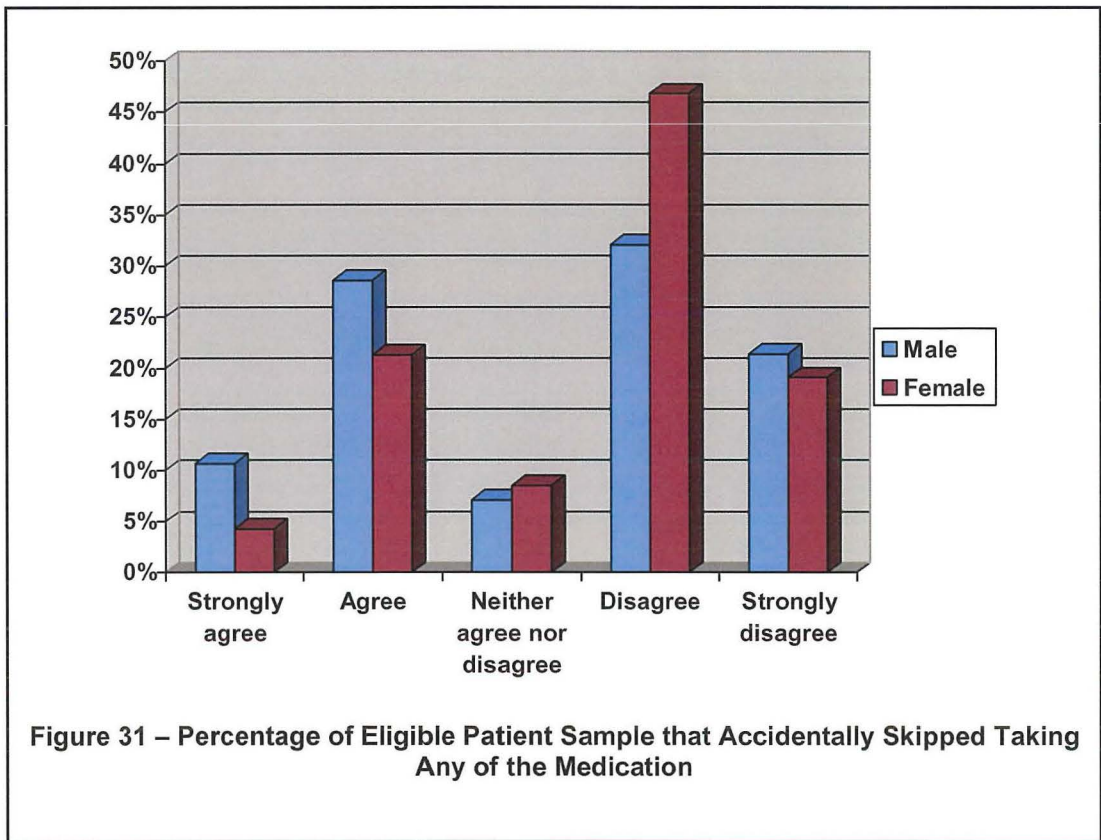
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	3	2	5
	% within Gender	10.7%	4.3%	6.7%
Agree	Count	8	10	18
	% within Gender	28.6%	21.3%	24.0%
Neither agree nor disagree	Count	2	4	6
	% within Gender	7.1%	8.5%	8.0%
Disagree	Count	9	22	31
	% within Gender	32.1%	46.8%	41.3%
Strongly disagree	Count	6	9	15
	% within Gender	21.4%	19.1%	20.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.487 ^a	4	.647
Likelihood Ratio	2.465	4	.651
Linear-by-Linear Association	1.043	1	.307
N of Valid Cases	75		

a. 4 cells (40.0%) have expected count less than 5.
The minimum expected count is 1.87.



$$X^2 (4) = 2.487, p = 0.647$$

Since the p-value (0.647) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy that the sample accidentally skipped taking any of the medication.

4.4.23 Question 23

Figure 32 demonstrates the percentage of the eligible patient sample according to whether they prefer to take their medication at one time rather than at different times. The findings of this research study shows that 31.9% females and 25% males strongly agree that they prefer to take their medication at one time rather than at different times. Furthermore, 32.1% males followed by 29.8% males also agree with this statement. By contrast, 17% female participants as opposed to 14.3% male participants disagree while, a further 28.6% males and 21.3% females strongly disagree that they prefer to take their medication at one time rather than at different times. It is interesting to note that none (0%) of the participants marked uncertain about this statement.

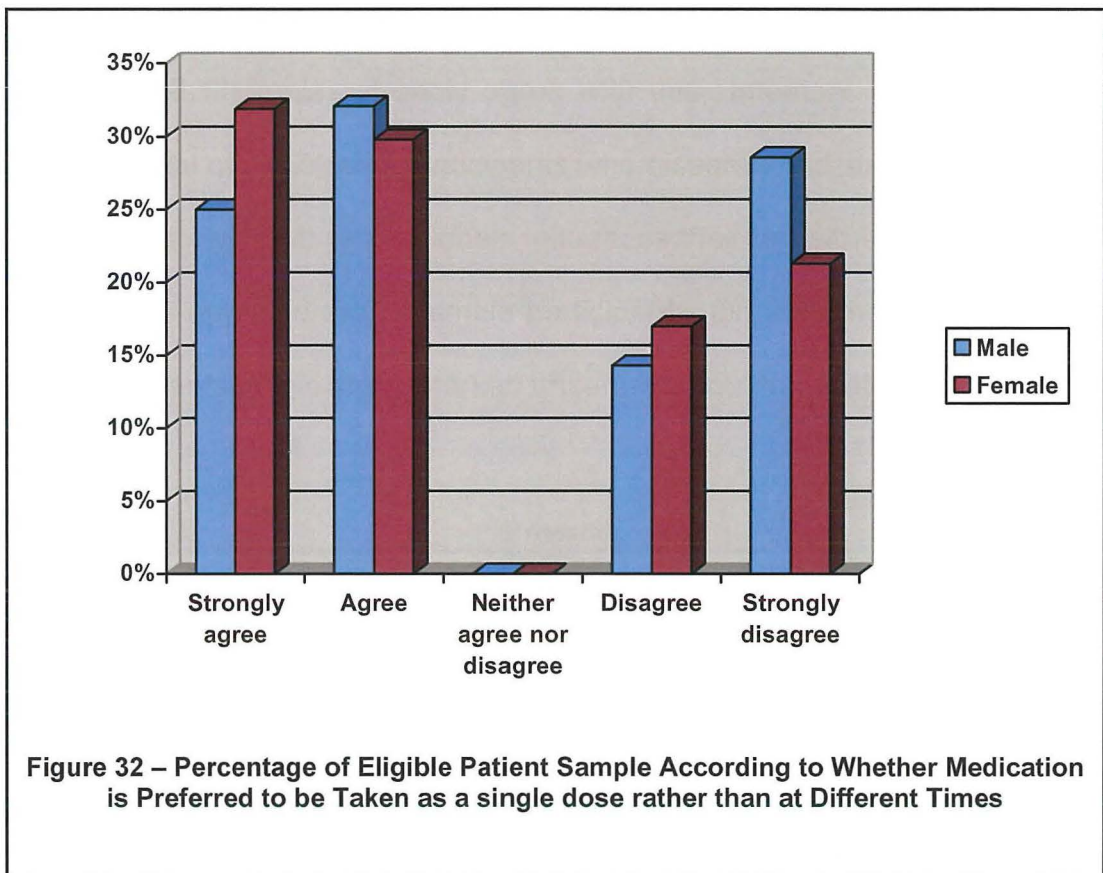
Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	7	15	22
	% within Gender	25.0%	31.9%	29.3%
Agree	Count	9	14	23
	% within Gender	32.1%	29.8%	30.7%
Neither agree nor disagree	Count	4	8	12
	% within Gender	14.3%	17.0%	16.0%
Disagree	Count	8	10	18
	% within Gender	28.6%	21.3%	24.0%
Strongly disagree	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.789 ^a	3	.852
Likelihood Ratio	.788	3	.852
Linear-by-Linear Association	.372	1	.542
N of Valid Cases	75		

a. 1 cells (12.5%) have expected count less than 5.
The minimum expected count is 4.48.



$$\chi^2 (4) = 0.789, p = 0.852$$

Since the p-value (0.852) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding whether medication is preferred to be taken as one time rather than at different times.

4.4.24 Question 24

Figure 33 represents the percentage of the eligible patient sample according to whether the relationship with the professionals influences the decision to take any of the medication. It is quite evident that the majority of males (60.7%) who participated in this research study agree that the relationship with the professionals influences their decision to take any of their medication as opposed to 42.6% female participants. It is interesting to note that 57.4% females as opposed to 32.1% males strongly agree with this statement. Furthermore, there was only a total of 7.2% male participants who disagree and strongly disagree that the relationship with the professionals influences their decision to take any of their medication as opposed to 0% female participants. On the other hand, none (0%) of the participants in this study marked uncertain about this statement.

Crosstab

		Gender		Total
		Male	Female	
Strongly agree	Count	9	27	36
	% within Gender	32.1%	57.4%	48.0%
Agree	Count	17	20	37
	% within Gender	60.7%	42.6%	49.3%
Neither agree nor disagree	Count	1	0	1
	% within Gender	3.6%	0.0%	1.3%
Disagree	Count	1	0	1
	% within Gender	3.6%	0.0%	1.3%
Strongly disagree	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%
Total	Count	28	47	75
	% within Gender	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.871 ^a	3	.076
Likelihood Ratio	7.568	3	.056
Linear-by-Linear Association	6.684	1	.010
N of Valid Cases	75		

a. 4 cells (50.0%) have expected count less than 5.
The minimum expected count is .37.

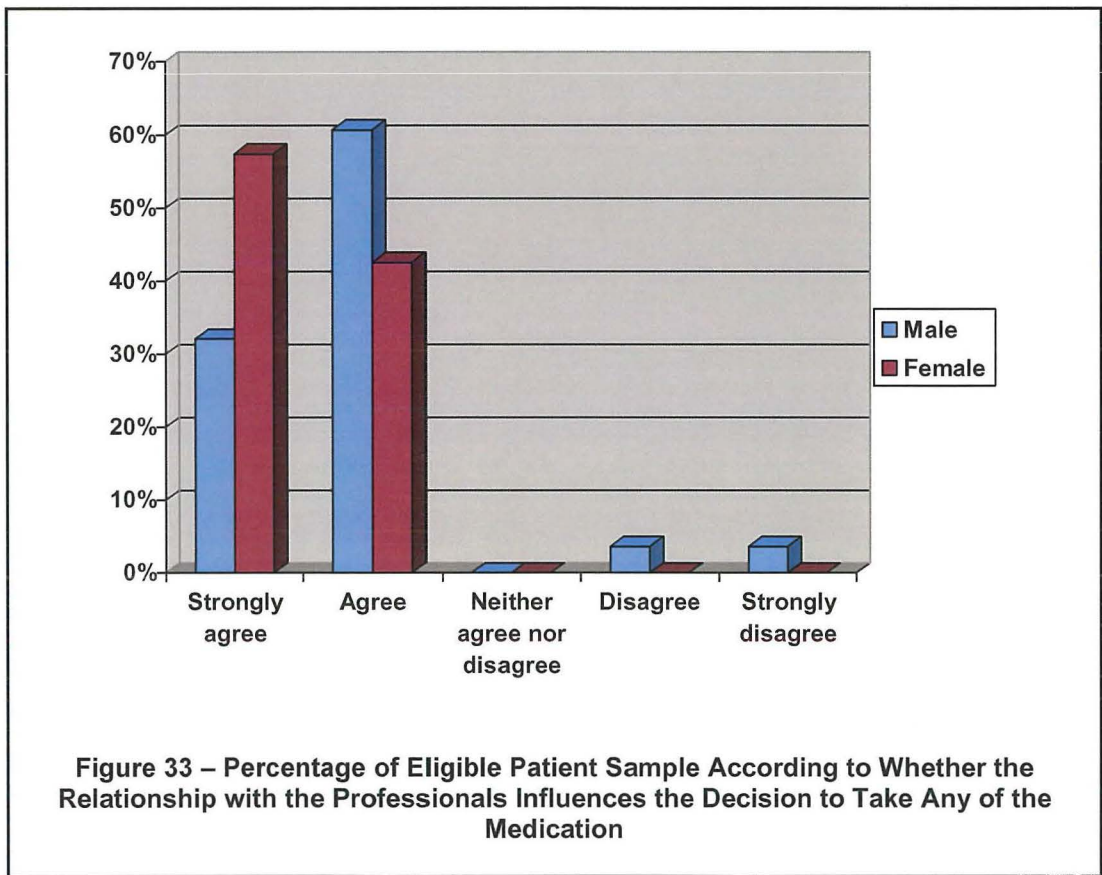


Figure 33 – Percentage of Eligible Patient Sample According to Whether the Relationship with the Professionals Influences the Decision to Take Any of the Medication

$$X^2 (4)=6.871, p=0.076$$

Since the p-value (0.076) exceeds the 0.05 level of significance the null hypothesis (H_0) is accepted. This implies that there is no gender discrepancy regarding whether the relationship with the professionals influences the decision to take any of the medication.

4.5 Percentage of Answers

This section illustrates an overview of the results obtained from the 24 closed-ended questions mentioned in Section 4.4. This was necessary in order to continue addressing the research question: 'To what extent are patients over the age of 60 discharged from the Rehabilitation Hospital Karin Grech (RHKG) to home compliant in their medication-taking: Six weeks post-discharge?' and possibly provide a deeper understanding of compliance in medication-taking.

The 24 closed-ended questions were divided into 5 sections namely: (i) condition-related factors (Question 1 to Question 6); (ii) social and economic-related factors (Question 7 to Question 11); (iii) therapy-related factors (Question 12 to Question 19); (iv) patient-related factors (Question 20 to Question 23); and (v) health care team and system-related factors (Question 24) (See Appendix 9). Although the 24 closed-ended questions were divided into 5 sections, it is imperative to note that in practice these factors are inter-related and should therefore not be viewed separately.

4.5.1 Question 1 to Question 6: Condition-Related Factors

The first 6 questions dealt with condition-related factors. The participants had the opportunity of choosing one of the five answers for each question (i.e. strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). The total data gathered for these 6 questions resulted in having 450 responses (282 female responses and 168 male responses).

The five answers of these 6 questions were grouped into three categories namely positive (strongly agree/agree), negative (disagree/strongly disagree) and uncertain responses (neither agree nor disagree). The positive answers were counted and resulted in having 203 responses (110 female responses and 93 male responses) i.e. 51.3% of the participants answered strongly agree/agree. The negative answers added up to 191 responses (132 female responses and 59 male responses) i.e. 48.5% of the sample disagree/strongly disagree with the respective statements. Lastly, 56 responses (40 female responses and 16 male responses) i.e. 12.4% were uncertain in their responses.

It is interesting to note that if one had to eliminate the participants who were uncertain in their responses and focus on those participants who chose the positive responses and negative responses, one would observe that 54.2% of the females and 45.8% of the males who are within the positive category are in agreement that such condition-related factors are strong variables in relation to compliance in medication-taking six weeks post-discharge from RHKG to home. The difference between the females and males in the positive category is of 8.4%.

By contrast, this research study has shown that 69.1% of the female respondents and 30.9% of the male respondents within the negative category are in a disagreement that such condition-related factors influences their medication-taking six weeks post-discharge from RHKG to home. The difference in this category is of 38.2%. In both the positive and negative categories, the females surpassed the males. **Table 10a and Table 10b** highlight the percentage of answers given by the respondents for each individual question.

	FEMALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Question 1	48.9%	12.8%	38.3%
Question 2	38.3%	4.3%	57.4%
Question 3	34.1%	10.6%	55.3%
Question 4	23.4%	23.4%	53.2%
Question 5	55.3%	14.9%	29.8%
Question 6	34.1%	19.1%	46.8%

Table 10a – Percentage of answers given by female population for each individual question [Question 1 to Question 6]

	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Question 1	71.4%	0.0%	28.6%
Question 2	46.4%	10.7%	42.9%
Question 3	57.2%	10.7%	32.1%
Question 4	35.7%	17.9%	46.7%
Question 5	50.0%	10.7%	39.3%
Question 6	71.4%	7.1%	21.4%

Table 10b – Percentage of answers given by male population for each individual question [Question 1 to Question 6]

4.5.2 Question 7 to Question 11: Social and Economic-Related Factors

These 5 questions dealt with social and economic-related factors. The participants had the opportunity of choosing one of the five answers for each question (i.e. strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). The total data gathered for these 5 questions resulted in having 374 responses (234 female responses and 140 male responses).

The five answers of these 5 questions were grouped into three categories namely positive (strongly agree/agree), negative (disagree/strongly disagree) and uncertain responses (neither agree nor disagree). The positive answers were counted and resulted in having 207 responses (124 female responses and 83 male responses) i.e. 55.3% of the participants answered positively. The negative answers added up to 130 responses (82 female responses and 48 male responses) i.e. 34.6% of the sample disagree/strongly disagree with the respective statements. Additionally, 37 responses (28 female responses and 9 male responses) i.e. 9.9% were uncertain in their responses.

It is interesting to note that if one had to eliminate the participants who were uncertain in their responses and focus on those participants who chose the positive responses and negative responses, one would observe that 36.8% of the females and 24.6% males who are within the positive category consent that such social and economic-related factors are significant towards compliance in medication-taking six weeks post-discharge from RHKG to home. The difference between the females and males in the positive category is of 12.2%.

Moreover, this study has shown that 24.3% of the females and 14.2% of the males differ that such social and economic-related factors influences their medication-taking six weeks post-hospitalisation from RHKG to home. The difference in this category is of 10.1%. In both the positive and negative categories the females surpassed the males. **Table 11a and Table 11b** represent the percentage of answers given by the respondents for each individual question.

	FEMALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Question 7	34.0%	17.0%	48.9%
Question 8	63.8%	19.1%	17.0%
Question 9	27.7%	19.1%	53.2%
Question 10	78.7%	2.1%	19.2%
Question 11	61.7%	2.1%	36.1%

Table 11a – Percentage of answers given by female population for each individual question [Question 7 to Question 11]

	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Question 7	50.0%	3.6%	46.4%
Question 8	67.8%	14.3%	17.9%
Question 9	42.9%	14.3%	42.9%
Question 10	82.1%	0.0%	17.8%
Question 11	53.5%	0.0%	46.4%

Table 11b – Percentage of answers given by male population for each individual question [Question 7 to Question 11]

4.5.3 Question 12 to Question 19: Therapy-Related Factors

These 8 questions dealt with therapy-related factors. The participants had the opportunity of choosing one of the five answers for each question (i.e. strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). The total data gathered for these 8 questions added up in having 694 respondents (376 females and 318 males). The five answers of these 8 questions were grouped into three categories namely positive (strongly agree/agree), negative

(disagree/strongly disagree) and uncertain responses (neither agree nor disagree). The positive answers were counted and resulted in having 289 responses (165 female responses and 124 male responses) i.e. 41.6% of the participants answered strongly agree/agree. The negative answers added up to 387 responses (200 female responses and 187 male responses) i.e. 55.8% of the sample disagree/strongly disagree with the respective statements. Additionally, 18 responses (11 female responses and 7 male responses) i.e. only 2.6% were uncertain in their responses.

It is interesting to note that if one had to eliminate the participants who were uncertain in their responses and focus on those participants classified under the positive and negative categories, one would observe that 24.4% females and 18.3% males who are within the positive category transpire to agree that such therapy-related factors strongly influences compliance in medication-taking six weeks post-discharge from RHKG to home. The difference between the females and males in the positive category is of 6.1%.

Furthermore, this research has shown that 29.6% of the females closely followed by 27.7% male respondents within the negative category disagree that such therapy-related factors influence their medication-taking six weeks post-hospitalisation from RHKG to home. The difference in this category is of only 1.9%. In both the positive and negative categories the females surpassed the males. **Table 12a and Table 12b** highlight the percentage of answers given by the respondents for each individual question.

	FEMALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Question 12	72.4%	0.0%	27.6%
Question 13	51.1%	4.3%	44.7%
Question 14	38.3%	2.1%	59.6%
Question 15	17.0%	4.3%	78.8%
Question 16	70.2%	2.1%	27.7%
Question 17	29.8%	4.3%	66.0%
Question 18	36.2%	4.3%	59.5%
Question 19	36.2%	2.1%	61.7%

Table 12a – Percentage of answers given by female population for each individual question [Question 12 to Question 19]

	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Question 12	57.2%	0.0%	42.9%
Question 13	39.3%	3.6%	57.1%
Question 14	21.4%	3.6%	75.0%
Question 15	18.6%	4.0%	77.4%
Question 16	68.0%	1.3%	30.6%
Question 17	25.0%	0.0%	75.0%
Question 18	35.7%	0.0%	64.2%
Question 19	32.1%	3.6%	64.2%

Table 12b – Percentage of answers given by male population for each individual question [Question 12 to Question 19]

4.5.4 Question 20 to Question 23: Patient-Related Factors

These 4 questions dealt with patient-related factors. The participants had the opportunity of choosing one of the five answers for each question (i.e. strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). The total

data gathered for these 4 questions resulted in having 300 responses (188 female responses and 112 male responses).

The five answers of these 4 questions were grouped into three categories namely positive (strongly agree/agree), negative (disagree/strongly disagree) and uncertain responses (neither agree nor disagree). The positive answers were counted and resulted in having 105 responses (63 female responses and 42 male responses) i.e. 35% of the participants answered strongly agree/agree. The negative answers added up to 163 responses (101 female responses and 62 male responses) i.e. 54.3% of the sample disagree/strongly disagree with the respective statements. Lastly, 32 responses (24 female responses and 8 male responses) i.e. 10.7% were uncertain in their responses.

It is interesting to note that if one had to eliminate the participants who were uncertain in their responses and focus on those participants who chose the positive responses and negative responses, one would observe that 23.5% of the females and 15.7% of the males agree that such therapy-related factors, play an important role with regards to compliance in medication-taking six weeks post-discharge from RHKG to home. The difference between the females and males in this category is of 7.8%.

Furthermore, this study has shown that 37.7% of the females and 23.1% of the males within the negative category differ that such therapy-related factors, influences their compliance in medication-taking six weeks post-hospitalisation from RHKG to home. The difference in this category is of 14.6%. In both the

positive and the negative categories, the females surpassed the males. **Table 13a** and **Table 13b** illustrate the percentage of answers given by the respondents for each individual question.

	FEMALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Question 20	14.9%	25.5%	59.6%
Question 21	32.0%	17.0%	51.1%
Question 22	61.7%	0.0%	38.3%
Question 23	38.3%	2.1%	59.6%

Table 13a – Percentage of answers given by female population for each individual question [Question 20 to Question 23]

	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Question 20	28.6%	10.7%	60.7%
Question 21	25.0%	10.7%	64.3%
Question 22	57.1%	0.0%	42.9%
Question 23	39.3%	7.1%	53.5%

Table 13b – Percentage of answers given by male population for each individual question [Question 20 to Question 23]

4.5.5 Question 24: Health Care Team and System-Related Factors

This question focused on health care team and system-related factors. The participants had the opportunity of choosing one of the five answers for each question (i.e. strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). The total data gathered for this question resulted in having 75 responses (47 female responses and 28 male responses).

The five answers of this question was grouped into three categories namely positive (strongly agree/agree), negative (disagree/strongly disagree) and uncertain responses (neither agree nor disagree). The positive answers were counted and resulted in having 73 responses (47 female responses and 26 male responses) i.e. 97.3% of the participants answered positively. The negative answers added up to only 2 male respondents i.e. only 7.2% of the sample fall within the negative category. It is noteworthy that none (0%) of the participants were uncertain in their responses.

100% of female respondents as opposed to 92.8% male respondents who are within the positive category agree that such health care team and system-related factors is a strong variable in relation to compliance in medication-taking six weeks post-discharge from RHKG to home. The difference in this category between females and males is of 28% favouring females. It is noteworthy that on the contrary to the other categories, this category is dominant by the male participants. **Table 14a and Table 14b** highlight the percentage of answers given by the respondents for this individual question.

FEMALE POPULATION			
	Positive Responses <i>(Strongly Agree/Agree)</i>	Uncertain Responses <i>(Neither Agree nor Disagree)</i>	Negative Responses <i>(Disagree/Strongly Disagree)</i>
Question 24	100%	0.0%	0.0%

Table 14a – Percentage of answers given by female population for this question [Question 24]

	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Question 24	92.8%	0.0%	7.2%

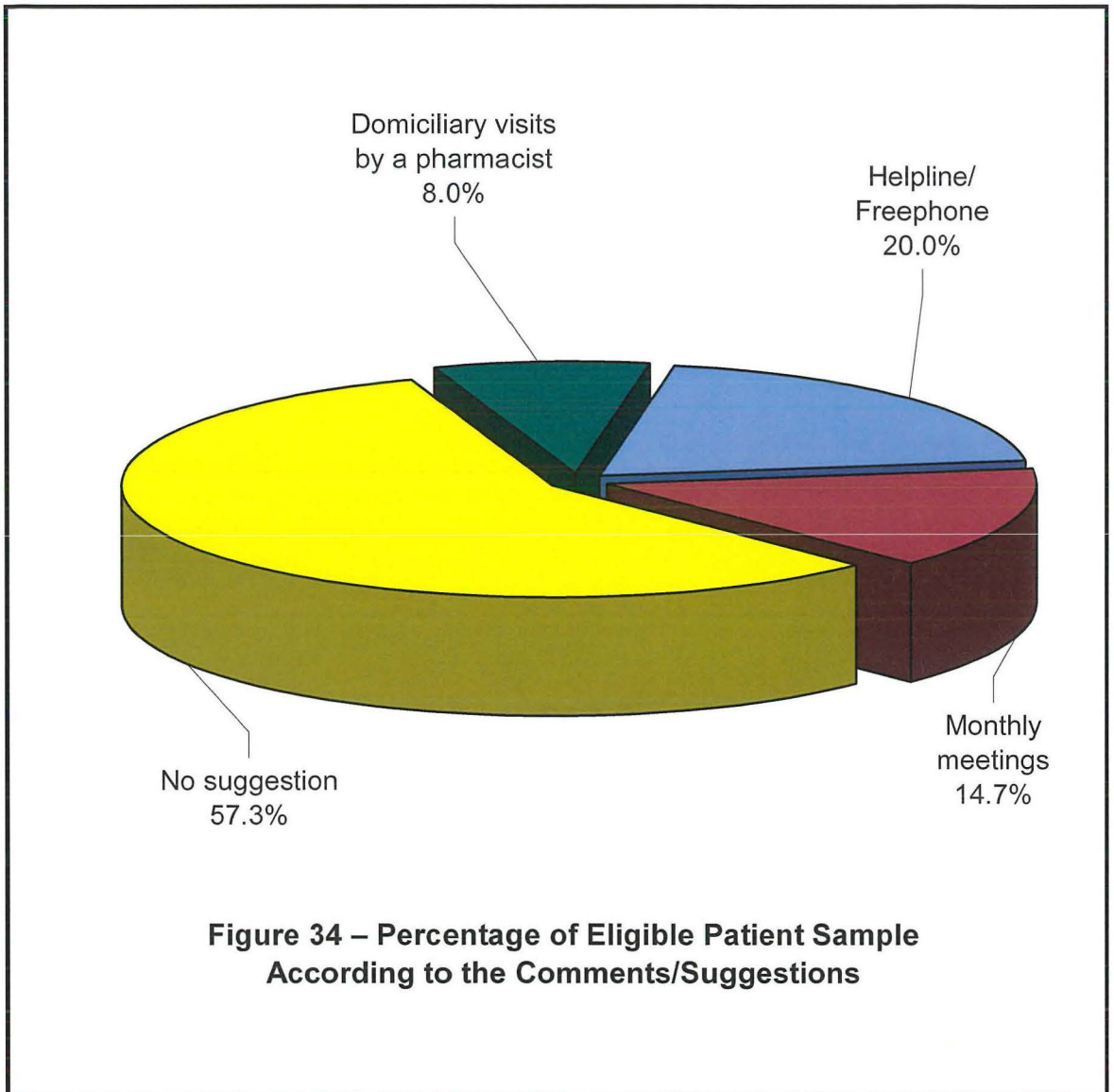
Table 14b – Percentage of answers given by male population for this question [Question 24]

4.6 Section D: Comments/Suggestions

All the seventy five patients who agreed to participate in the study had the opportunity to put forward any comments/suggestions in relation to medication administration. The following section will highlight the results obtained.

4.6.1 Eligible Patient Sample: Comments/Suggestions

57.3% of the research participants did not come up with any suggestions. The remaining 42.7% of the eligible patient sample came up with different suggestions. Out of these, 46.9% (20.0% of the whole sample) of the patients suggested a helpline/freephone, 34.4% (14.7% of the whole sample) suggested monthly meetings (held at the Local Council/ Day Centre/DayHospital/Out-Patient at RHKG/Health Centre) and 18.8% (8.0% of the whole sample) recommended domiciliary visits by a pharmacist. **Figure 34** represents the percentage according to the comments/suggestions put forward by the patients.



4.7 Conclusion

This chapter gave an overview of the results obtained from the eligible patient sample obtained from the actual study. A profile of the eligible sample was provided together with the answers obtained from the different sections in the questionnaire. From 195 patients, there were 75 patients who agreed to participate in this study whilst 120 were either not eligible or refused to participate in the research study.

The seventy five patients who agreed to participate in the study were mainly females. The majority of the patients were in the 70-79 year age cohort, married and admitted from the Southern Harbour Region. It is interesting to note that living alone and living with spouse scored equally as the common form of living arrangements post-hospitalisation. Furthermore, most of the patients were admitted with an orthopaedic condition and were holders of both the yellow and pink medication cards. All seventy five patients agreed that they made use of the discharge medication chart and 70.7% of the eligible patient sample suggested changes with the most common suggestion was an increase in print size.

The data collected for the 24 closed-ended questions were analysed by running the chi-square significance test. The results of this test show that out of the 24 closed-ended questions, the null hypothesis is accepted in 23 questions since the p-value exceeds the 0.05 level of significance. On the other hand, Question 6, (*"I stopped taking any of the medication due to fear of side effects"*), is the only question that the alternative hypothesis is accepted since the p-value (0.026) is less than 0.05 level of significance. The above findings are not surprising, because the magnitude of the p-value of the chi-square significance test, depends on the differences between the proportions of males and females together with the sample size. When the differences between the proportions are small, the size of the p-value would be close to 1 and the null hypothesis would be accepted. On the other hand, when the differences in proportions are large, the size of the p-value is close to 0 and the alternative hypothesis would be accepted if the p-value is less than 0.05 level of significance. As mentioned above, the sample size also affects

the p-value with samples of less than 100 respondents. This means that since there were 75 respondents who agreed to participate in this research study, and therefore the sample was less than 100 respondents, it is very unlikely that the chi-square significance test yields a significant association between the two categorical variables i.e. very unlikely that the p-value is less than 0.05 criteria (Camilleri, personal communication, December 10, 2013).

The data collected for this research study was also entered into a database created using Microsoft Office Excel Sheet (2007) where the data was converted to percentages and analysed accordingly. In fact, out of the 24 closed-ended questions, Question 24 (*"The relationship with the professionals influences my decision to take any of my medication"*), is the only question derived from the health care team and system-related factors, that both males and females, scored the greatest percentage within the positive category. It is interesting to note that the females chose only the positive category. The result of this question confirms that 100% of the female participants closely followed by 92.8% male participants admitted that the relationship with the professionals influences their decision to take any of their medication. These results indicate that the majority of the participants claim that the relationship with the professionals plays an important role and it is therefore a strong variable with regards to compliance in medication-taking six weeks post-discharge from a rehabilitation hospital. It is noteworthy that the percentage of female participants surpassed the percentage of male participants.

It is interesting to note that from the 24 closed-ended questions, 12 questions favour the males (Question 1,2,3,4,6,7,8,9,10,15,20,23) while the other 12 questions favour the females (Question 5,11,12,13,14,16,17,18,19,21,22,24). (See Appendix 10 for the list of questions favouring the males and females). After analysing the data further, it emerged that the condition-related factors are dominated by the male respondents while the therapy-related factors are dominated by the female respondents. Furthermore, there are 13 questions, 9 questions from the male respondents (Q1,10,11,12,16,17,18,22,24) and 4 questions from the female respondents (Q12,20,22,24) with 0% uncertain responses. Out of these 12 questions, there are 3 common questions namely Question 12, Question 22 and Question 24, that both males and females scored 0% in the uncertain responses.

At the end of the questionnaire, in Section D, 42.7% of the sample came up with comments/suggestions. The most popular suggestion put forward by the patients was the implementation of a helpline/freephone service.

Chapter 5 gives a more detailed discussion of the results obtained from the eligible patient sample from the various sections of the questionnaire substantiated with literature. The limitations of this study will also be discussed.

Chapter 5

Discussion

CHAPTER 5 – DISCUSSION

5.1 Introduction

The previous chapter highlighted the findings from the research study that aimed to collect data about compliance in medication-taking six weeks post-hospitalisation from a rehabilitation hospital to home. This chapter will discuss these findings by first providing an overview of the seventy five patients who agreed to participate in this research study. This is then followed by a discussion of the answers obtained from the questionnaire which was made up of 24 closed-ended questions based on a 5 point Likert Scale. The final section draws upon the limitations of this study.

The 24 questions were divided into 5 sections namely: (i) condition-related factors (Question 1 to Question 6); (ii) social and economic-related factors (Question 7 to Question 11); (iii) therapy-related factors (Question 12 to Question 19); (iv) patient-related factors (Question 20 to Question 23); and (v) health care team and system-related factors (Question 24) (See Appendix 9). Although the 24 questions were divided into 5 sections, it is imperative to note that in practice these factors are inter-related and should therefore not be viewed separately.

For each question, the participants had the opportunity of choosing one of the five answers (i.e. strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). The five answers of each question in every section were grouped into three categories namely positive (strongly agree/agree), negative

(disagree/strongly disagree) and uncertain responses (neither agree nor disagree). Such a method was employed to give a better and a clear description of whether the seventy five patients who agreed to participate in this study were inclined towards being compliant or non-compliant with their medication-taking six weeks post-hospitalisation. Additionally, the main focus was on the positive and negative responses rather than the uncertain ones. This was necessary to continue providing a more concrete interpretation/respresentation of the situation, understand better the patient's needs and also suggest ways of potentially improving compliance in medication-taking post-hospitalisation.

5.2 Demographic Profile of the Research Participants

The seventy five patients who agreed to participate in this research study were made up of forty seven females (62.7%) and twenty eight males (37.3%). It is quite evident that the majority of the participants were females. It is not of surprise that more females participated in this study, as demographics confirm that with advancing age females outlive males (National Statistics Office (Malta), 2011). The age of the research participants who accepted to take part in this study ranged from 60 years to 89 years. The majority of the research participants were in the 70-79 year age cohort (36%) followed by the 80-89 year age cohort (33.3%). The average age of in-patients admitted in 2012 at the rehabilitation hospital was 79.7 years.

The majority of the research participants were admitted from the Southern Harbour Region. It is interesting to note that living alone and living with spouse scored equally (37.3%) as the common form of living arrangements post-hospitalisation.

The majority of the participants, who required hospitalisation, were admitted with a main diagnosis of an orthopaedic condition and were holders of both the yellow and pink medication cards. Furthermore, the participants had between one and four other conditions classified as secondary diagnosis, and the most common type was of a medical nature. All participants made use of the discharge medication chart. However, 70.7% of the sample considers a change in the medication card. It is noteworthy that the most popular suggestion, put forward by the participants, was an increase in print size (58.5%).

5.3 Discussion of the 24 Closed-Ended Questions

5.3.1 Question 1 to Question 6: Condition-Related Factors

The first 6 questions related to the 24 closed-ended questions, dealt with condition-related factors (See Appendix 9a). From this section, the research study indicates that, the percentage of male participants surpassed the percentage of female participants in five out of six statements within the positive category.

In Question 1, 71.4% of the male respondents and 48.9% of the female respondents intentionally stopped taking the medication without seeking professional advice. According to existing literature, this type of non-compliance is described as intentional non-compliance where a patient takes a conscious decision, to stop taking the prescribed medication against the advice given by a health care professional (Rajaei-Dehkordi et al., 1997). Data obtained in this research study confirms that more males were non-compliant with their medication-taking six weeks post-discharge. A similar pattern is observed in

Question 2 and Question 3. Question 2 reveals that 46.4% of the male population and 38.3% of the female population admitted that they stopped taking the medication as a result of feeling better. Meanwhile, Question 3 looked at whether the participants stopped taking the medication as a result of not seeing/feeling any signs of improvement. The results obtained from this study highlights that 57.2% of the male participants and 34.1% of the female participants admitted that they stopped taking the medications.

Possible reasons for the above results could be that females have more confidence in the health care provider and tend to follow the treatment as prescribed. On the other hand, males may be sceptical in the health care provider and more risk-taking in testing the effect of the medication (Dowell & Hudson, 1997). Furthermore, other reasons might be the belief that the prescribed medication may no longer be required, and/or, the lack of presenting symptoms particularly in chronic conditions such as hypercholesterolemia. Literature has shown that when a health condition is defined as a chronic condition, particularly if the condition presents itself asymptomatic, it is not surprising that a patient is reported to be non-compliant with the medication regimen post-discharge. In fact, research undertaken by Meichenbaum and Turk (1987) explains that when patients lack presenting symptoms, related to their present condition, the percentage of non-compliance in medication-taking is reported to increase significantly.

It is interesting to note that Question 4, scored the lowest percentage associated with positive responses with 35.7% of the males and 23.4% of the females who

discontinued the medication as a result of feeling sceptic. This indicates that more males were non-compliant with their medication-taking post-discharge.

Question 5 which dealt with participants who discontinued the medication as a result of feeling worse, is the only statement where the positive responses, favours the female participants with 55.3% as opposed to 50% of the male participants. This result shows that more females were non-compliant with their medication-taking six weeks post-discharge.

It was observed that both in Question 1 and Question 6 the male respondents scored equally and achieved the highest percentage (71.4%) of the positive responses. The results obtained indicate that more males were non-compliant with their medication-taking six weeks post-hospitalisation. On the other hand, both in Question 3 and Question 6, 34.1% of the females scored an identical result favouring the positive responses.

From this observation, Question 6 which dealt with participants that discontinued the medication due to fear of side effects, appears to be of concern to both parties within the positive category, in particular the male participants (71.4%). The findings obtained from this research study indicate that more male participants were non-compliant with their medication-taking six weeks post-hospitalisation from a rehabilitation hospital to home. Literature acknowledges that fear of side effects is a frequently reported reason for non-compliance to medication-taking (Corlett, 1996). In line with this statement, a survey carried out by Harris Interactive (2005) confirmed that a massive 45% of the 2,507 adult participants did

not take their medication due to fear of side effects. A possible reason that the research participants declared that they discontinued the medication due to fear of side effects, is that when patients assume side effects (such as nausea or dizziness) to be a worsening effect of the illness. In light of the above, such an issue needs great consideration to better understand current and future in-patients in such a way to be able to improve compliance in medication-taking post-discharge. Such an effort will also help in improving the older person's quality of life, decreasing hospital admissions and understanding better the patient's needs and concerns.

In a health care environment, the patients weigh the recommendations of the health care provider against their health beliefs of the potential results of being compliant and non-compliant with the medication-taking. In fact, a study by Becker, Maiman, Kirscht, Haefner, Drachman, and Taylor (1979) confirms that positive correlations exist between patients' compliance and their health beliefs. The same study suggests that by looking into and addressing the patients' perceptions and attitudes about their medical condition and treatment regimens, health care providers, may potentially be able to obtain a more accurate and realistic picture of the patients' level of compliance in medication-taking. Therefore, by addressing these issues, there is a greater possibility that patients' compliance in medication-taking will improve.

On the day of discharge, patients are given a discharge medication chart with all the required information about their medications. However, according to the findings obtained in this research study, a degree of non-compliance with

medication-taking post-hospitalisation still persists. Studies have shown that patients who are knowledgeable about their medical condition, as well as, the reason of taking the medication as advised by a health care professional, had an understanding of the drug regimen and understand the need of taking such medicines, appear to have better compliance rates (Butler et al., 2002; Daltroy et al., 1991; Edwards & Pathy, 1984; Park, Morrell, Frieske, & Kincaid, 1992). Furthermore, it is also important to note that older persons should also understand the role that medicines play in treating or managing their condition/s. This is significant in order to decrease the possibility that older persons stop taking any of their medication intentionally without consulting a health care professional. In a study carried out by Gentili, Maldonato, Grieco and Santini (2001) reported that it is a must that health care providers address patient's concerns and potential barriers. This is an important aspect that needs to be looked into, so that, health professionals focus not only on prescribing or providing immediate intervention to treat the condition e.g. prescribing insulin to control Diabetes Mellitus, but also in ensuring compliance in medication-taking.

Educating and communicating with the patient in such a way that is appealing to both the patient and the caregiver is vital in order to improve compliance in medication-taking. In fact, Dutcher (2007) claims that "physicians and pharmacists must function as teachers, [counsellors], motivators, and persuaders" (p.3). Furthermore, a study carried out by Lipton et al. (1994) showed that patients being counselled by a clinical pharmacist proved to positively effect compliance. A positive aspect in this regard is that having the treatment discussed with the pharmacist, might help patients to voice their concerns about their treatment and

might potentially improve compliance in medication-taking. The first National Report published in the United States, in 2013, entitled: 'Medication Adherence in America' points out that "pharmacists have a role at the forefront of addressing prescription medication non-adherence" (p.12).

With this in mind, a plausible recommendation would be that prior to a patient being discharged from the rehabilitation hospital to home, the patient with the assistance of the inter-professional team, may be given the opportunity to self-administer their own medication and at the same time be supervised by the nursing staff or the pharmacist. This should also prove to be fruitful in preparation for discharge planning. Should the patient ask any questions and/or encounter any difficulties regards taking the medication, the patient would have the opportunity to tackle any issue accordingly. Therefore, educating patients and caregivers plays an important role in improving compliance in medication-taking. A study conducted by Youssef (1983) which focused on the effect of patient education on compliance in medication-taking post-discharge reported that the group of participants, who received education had better compliance rates post-discharge compared to the control group, who received no education. Further studies have shown that education positively influences compliance in medication-taking post-hospitalisation (Elliott, 2003; Esposito, 1995).

5.3.2 Question 7 to Question 11: Social and Economic-Related Factors

These 5 questions related to the 24 closed-ended questions, dealt with social and economic-related factors (See Appendix 9b). This research study shows that from this section, the percentage of male participants surpassed the percentage of

female participants in four out of five statements that fall within the positive category.

Data gathered in Question 7 reveals that 50% of the male population and 34% of the female population refer to the drug with its generic name. On the other hand, 48.9% of the males and 46.4% of the females responded in the negative. According to the results obtained in this research study, referring to the drug with its generic name does not seem to be an influential factor towards medication-taking six weeks post-discharge. A plausible reason could be that the older person might be more interested in knowing other information about the medication e.g. the purpose of taking the medication. Additionally, the patient may simply not use the generic name when referring to the medication because it might be difficult to pronounce or to remember and therefore finds their own way of referring to the respective medication.

Question 8 dealt with participants who experienced difficulty in buying any of their medications due to financial constraints. This statement scored the lowest percentage within the negative category with 17% across the female respondents and 17.9% across the male respondents. On the other hand, data from this research study confirms that 67.8% of the male participants and 63.8% of the female participants responded positively towards this question. This shows that more male participants were non-compliant with their medication-taking six weeks post-hospitalisation.

A study by Mojtabai et al. (2003) reveal that in the United States, two million elderly persons are not compliant with their medication due to costs. Other studies (Hutchison et al., 2006; Osterberg et al., 2005) have also reported that the cost of medications have a negative effect on compliance, thus, increasing the possibility that the older person might be unable to buy the required medication due to financial constraints. This situation is of great concern because if an older person is unable to buy the medication, particularly to treat a chronic condition, there is an increased risk of eventually suffering from multiple chronic conditions. Research shows that a person suffering from a single chronic condition increases the possibility of eventually suffering from multiple chronic conditions (Guralnik et al., 1989; Schellevis et al., 1993).

Further studies have reported that multiple chronic conditions are negatively associated with poor quality of life, mortality, hospital admissions, decreased functional abilities and decreased functional mobility (Barat et al., 2001; Caughey et al., 2010; Corlett, 1996; Marengoni et al., 2011). Thus, if cost is a barrier, the patient may feel embarrassed to discuss such a delicate and sensitive subject. Therefore, the pharmacist should prudently approach the subject and ideally, when possible, provide the patient with an alternative low cost medication (Hsu et al., 2008). This is a positive measure as the patient is provided with the opportunity of taking an informed decision in relation to medication-taking post-hospitalisation.

Older persons who experience financial difficulties to buy the required medications may be inclined to alter their drug regimen in such a way so that their medications

lasts longer by skipping doses or extend the time between the recommended doses. Splitting tablets, reducing the number of tablets therefore, taking a lower dose than prescribed (for example taking 1 tablet instead of 2 tablets) are also other strategies employed by older persons. Furthermore, an older person might decide to choose what medication to take according to the cost of the medication (low cost medication against high cost medication). If an older person decides to buy only the low cost medications due to financial constraints, such a situation becomes worrying. This is because the purchased medication may not necessarily reflect the most required medication to treat the older person's present condition/s.

The latter becomes more complex in particular when treating chronic conditions such as hypertension which is described as a symptomatic condition. Therefore, an older person might prefer to buy a medication to control the presenting and immediate symptoms e.g. buying medication to treat a cough instead of buying medication to control hypertension. The above situation calls for a collaborative relationship between the older person and the health care provider. Such a working relationship is necessary in order to find an alternative way that enables the older person to buy the required medications. Looking at the older persons in a holistic manner promotes the older person's dignity, improves the patient's quality of life as well as quality of care. Such an approach may continue to enhance compliance in medication taking.

Question 9 focused on participants who would consider buying a drug that falls under the POYC scheme should it be out of stock. It is interesting to note that the male participants scored equally (42.9%) amongst the negative and positive

responses. On the other hand, 53.2% of the female responded within the negative category and 27.7% across the positive category, which also happens to be the lowest percentage within the positive category.

It is interesting to note that from the positive category, Question 10 that dealt with knowledge about the medication, is the one in which both the male respondents and female respondents scored the highest percentage (82.1% males and 78.7% females). The findings obtained from this research study indicate that the majority of the respondents feel knowledgeable about their medication post-hospitalisation. It is also interesting to note that only 2.1% of the female respondents were uncertain about this statement. Thus, the information given at RHKG prior to discharge indicates fruitful results. Such results also indicate that older persons show interest with regards to their medication-taking. This continues to highlight the need of involving and communicating more with the patients as the main protagonist, caregivers and family members during the in-patient stay of the older person. This will also help in preparation for discharge planning to ensure a smooth transition from hospital to home, in particular, to medication knowledge and medication-taking.

Research confirms that patient knowledge is positively associated with compliance in medication-taking (Barat et al., 2001; Dunbar-Jacob et al., 2003). Further literature acknowledges that the more the patient is well informed about the illness and the medications prescribed, the greater is the possibility that the patient will be compliant with the medication-taking post-hospitalisation. In addition, it has also been noted that if patients prior to discharge are taught and are able to self-

administer their medications, there is also an increased likelihood that the patient will follow their medication regimen as prescribed. Therefore the patient would be considered as being compliant in medication-taking (Deinzer et al., 2006; Sajatovic, 2005; Wilson et al., 2010). Further studies emphasise that communicating with the patient, as well as, providing pertinent information regarding their prescribed medication (why,when,what,how), together with informing the patient and the caregiver of any possible side effects, prior to taking the medication positively correlates with improving compliance rates in medication-taking post-discharge (Jimmy, & Jose, 2011; Joosten et al., 2008; Owens, 2006).

Additionally, a study carried out by Martens (1998) reported that a combination of both oral and written information was the preferred method identified by older persons that found it valuable. On the other hand, Cline et al. (1999) reported that 27% of older persons were found to be non-compliant in medication-taking thirty days post-hospitalisation, even though they were given both written and verbal instructions, to follow their medication regimen accordingly.

Question 11 that dealt with participants who encountered difficulty to go to the pharmacy is the only statement where the majority of positive responses favours the female participants with 61.7% as opposed to 53.5% of the male participants. This result shows that more females were non-compliant with their medication-taking six weeks post-discharge. These results indicate that social support plays a significant role in improving medication-taking in older persons post-hospitalisation. Multiple of studies (Barat et al., 2001; Beckman et al., 2005;

DiMatteo 2004a; Dunbar-Jacob et al., 2003; Fincham et al., 1986; 1988) support the notion of social support post-discharge.

A possible measure to improve the above situation is by investing the appropriate resources and services in the community. This is possible by first looking into the existing community services followed by working and developing on setting up the required community services according to the needs of older persons in the community such as providing social support within the community. A recommendation put forward in a study carried out by Vassallo (2006), highlights the importance of providing older persons with on going care and follow-up in the community post-discharge. This is an important recommendation that needs to be taken into consideration, in order to better support older persons and their main carers, with the aim of improving compliance rates in medication-taking post-hospitalisation.

Simons et al. (1992) further suggests that older persons, particularly frail, would highly benefit from domiciliary visits by a pharmacist. This is because there is an increased possibility that older persons lose contact with their community pharmacist. Thus, in this way the older person is still being followed and has the opportunity that any difficulties the patient might encounter in relation to medication taking, can be dealt with accordingly. It is interesting to note that during this research study, the eligible patient sample had the possibility to put forward any suggestions with regards to medication taking. In fact, 42.7% of the research participants came up with different suggestions. Out of these, 18.8% recommended domiciliary visits by a pharmacist. It is to be noted that in the current

situation if an older person requires assistance with regards to taking the medication and there is no informal support who can provide such assistance, the the older person can benefit from formal support offered by the MMDNA service, where a nurse would prepare the required medications for the older person.

A further recommendation, which will enable participants to overcome the difficulty to go to the pharmacy, draws upon the need of having the set up of a transport community service. The aim of the service would be to deliver the medications to the older person's home accordingly. Such a service would be beneficial for those older persons who have, for example, mobility limitations and therefore would have to depend on family members to collect their own medicines. This would facilitate and possibly encourage medication-taking six weeks post-hospitalisation. This service would also be useful for those older persons who have a weak social network.

5.3.3 Question 12 to Question 19: Therapy-Related Factors

These 8 questions related to the 24 closed-ended questions, dealt with therapy-related factors (See Appendix 9c). This research study shows that from this section, the percentage of female participants surpassed the percentage of male participants in seven out of eight statements that fall within the positive category.

In Question 12, 72.4% of the female population and 57.2% of the male population admitted they encountered difficulty reading medication labels due to small print. Data gathered from this research study clearly shows that more females were non-

compliant with their medication-taking six weeks post-hospitalisation. It is interesting to note, that the percentage obtained from the positive responses which amounted to 72.4% is the highest percentage from the female population. It is noteworthy that none (0%) of the participants were uncertain in their responses.

Further data obtained in Question 13 reveals that 51.1% of the female participants and 39.3% of the male participants encountered difficulty in following instructions with regards to their medication-taking. These results confirm that more females were non-compliant with their medication-taking six weeks post-discharge from a rehabilitation hospital to home.

Possible suggestions in improving participants' compliance in medication-taking six weeks post-hospitalisation include increasing the print size, using pictograms on medicine labels and on the discharge medication chart (Dowse et al., 2005; Murray et al., 1986; Vik et al., 2004). It is interesting to note that the seventy five research participants who agreed to take part in this research study, confirmed that they all referred to the discharge medication chart. However, it is noteworthy that 70.7% of the participants claimed that they consider a change in the discharge medication chart. The two popular suggestions put forward by the research participants were to increase the print size (58.5%) followed by implementing pictograms (26.4%). All the above measures will help facilitate the patient to read and follow the instructions as indicated. Another suggestion with regards to labelling is that from time to time, the label is changed to a new one particularly when it starts to crumble or disintegrate. This label can be changed by the patient. However, should the patient experience difficulty in changing the label, then a

family member/caregiver or a health professional would be required to change the label. This suggestion would possibly encourage medication-taking six weeks post-discharge. Patients may also encounter difficulty in following instructions for other reasons such as not understanding the instructions given by the health care provider (Corlett, 1996).

Study findings reveal that over 60 per cent of patients who visited their doctor and were then interviewed immediately afterwards, misunderstood the instructions given by the doctor regarding their prescribed medication. Thompson et al. (1993) reported that patients encountered difficulty with the following terminology. The three identified terms included 'stroke' (78%), 'orally' (38%) and 'symptom' (22%). Therefore, communicating clear instructions, avoiding use of medical jargon, allowing time for the patient to clarify any concerns and involving the patient in any decision making, are all positive measures in improving medication-taking post-hospitalisation (Barat et al., 2001; Schneider et al., 2006; Moore et al., 2004; Rubin, 2005; Vermeire et al., 2001; Vik et al., 2004; Vlasnik et al., 2005).

Question 14 confirms that 38.3% of the female participants and 21.4% of the male participants claim they experienced difficulty with opening their drug container or packaging. This indicates that more females were non-compliant with their medication-taking six weeks post-hospitalisation. Study findings reported that older persons experience difficulty in opening child-resistant containers (Atkin et al., 1994; Nikolaus et al., 1996). A further study conducted by Thwaites (1999) found that one third of older persons were unable to open child-resistant containers. In fact, the majority (91%) left the container opened or found an alternative way of

taking their medication hence, effecting medication negatively. Similarly, findings presented by Bevil (1991) also points out that 28 per cent of older persons residing in the community, left their medication container opened to be able to take their medication as prescribed. On the other hand, a study undertaken by Botelho et al. (1992) reported no association between compliance in medication-taking and the opening of drug containers.

A possible measure to improve the above situation is using a simple strip compartment plastic box. This tool is commonly found and inexpensive. This is commonly found in seven compartments, one compartment for each day of the week. This box can be prepared once weekly by the patient, by a family member/ caregiver or a health care professional such as MMDNA. An advantage associated in using a weekly pill box is that the medication is only required to be prepared once a week. On the other hand, a disadvantage attached in preparing the medications once a week, is that a mistake may possibly occur seven times. Other advantages associated when using a seven day pill box is that it is commonly found, light to carry and compact. Additionally this compliance aid is also practical to use and easy to open when compared to the child-resistant containers. The design of this compliance aid may be another way of encouraging and enabling the older person to be compliant with their medication-taking post-discharge. It is also noteworthy that there also compliance aids available with Braille embossed. These types of compliance aids are important as well as useful should the older person be visually impaired.

A main disadvantage associated with this type of manual compliance aid is that the medications are removed from their original packaging and therefore the medications might get easily mixed up if the medication compliance aid is accidentally dropped. A study carried out by Littenberg et al. (2006) reported that the seven day week pill box was the most popular medication compliance aid used. This result may encourage health care providers to promote and encourage older persons, to use this type of compliance aid which may further help in improving compliance rates in medication-taking.

Once the seven day weekly box is prepared, it is then the patient's responsibility to take the medication as prescribed. Should the patient accidentally forget to take a particular dose, the container in itself acts as a reminder since the tablets are placed in a clear container. In addition, the container can act as guidance in order to help the older person know which medication needs to be taken.

On the other hand, failing to prepare the weekly medication box, will impose several risk factors, such as affecting the patient's quality of life and increasing the risk of hospital admissions. This situation can be manageable if there is a means of social support. Both informal and formal support play an important role, where the patient can prepare the medication box with supervision provided from the latter. Furthermore, should the patient experience difficulty in handling the medication, then informal or formal support would be required to assist the older person in taking the medication as required post- hospitalisation. With regards to formal support, there needs to be the appropriate set up of resources across the

public and private sector so that the needs of the older person in relation to medication-taking are met, as well as, the older person's quality of life is improved.

Question 15 observed whether the sample encountered difficulty to distinguish tablets which look similar in size. The findings obtained from this research study show that only 17% of the female respondents and 21.4% of the male respondents responded positively to this question. According to earlier studies, Green et al., (1986) and Jinks et al., (1990) acknowledge that older persons may have difficulty to differentiate tablet size. However, the findings from this research study report differently. The results of this study clearly show that the majority of the participants in this study i.e. 78.8% of the female participants and 75% of the male participants, did not experience any difficulty. Therefore, it is quite evident that distinguishing tablets which look similar in size is a weak factor in relation to medication-taking six weeks post-discharge from a rehabilitation hospital to home. It is interesting to note that question 15 is the one statement that both the female participants (17%) and the male participants (21.4%) scored the lowest percentage from the positive responses.

Findings from this research study clearly illustrates that in Question 16, 70.2% of the female population and 64.3% of the male population, argue that the size of the drug affects them in relation to their medication-taking. This indicates that more females were non-compliant with their medication-taking six weeks post-hospitalisation to home. It is noteworthy, that the percentage obtained from the positive responses which amounted to 64.3% is the highest percentage from the male population.

Question 17, dealing with whether the colour of the medication mattered in relation to medication-taking, resulted to be a weak contribution towards medication-taking, six weeks post-discharge. This is because, findings obtained from this study show that only 29.8% of the female participants and 25% of the male participants responded positively towards this question. Earlier studies Cattaneo et al. (1970) and Lucchelli et al. (1978) reported that blue tablets were more calming than orange tablets. A plausible explanation might be that orange is considered as a vibrant and stimulating colour. Furthermore, Stegemann (2005) claims that red, yellow and light blue are perceived as bright colours while brown, dark blue and pink create calmness. Additionally, Overgaard et al. (2001) found that the favourite colour for tablets and capsules is white, while, purple tablets and brown capsules are less favourite colours. Although literature acknowledges that colour may be influential with regards to medication-taking, this research study reports differently. This is so, since the data gathered from this study confirms that the colour of the drug seems to be a weak factor towards improving medication-taking six weeks post-hospitalisation. This is because, 75% of the male participants and 66% of the female participants responded in the negative.

In Question 18, 36.2% of the female respondents and 35.7% of the male respondents claimed that the shape of the drug affects them with regards to taking their medication. A study presented by Overgaard et al. (2001) reported that, a circular shape was the preferred shape for small tablets whereas an oval shape was the preferred shape for medium and larger tablets. Furthermore, other researchers claim that tablets that are round and small may be difficult to pick up (Green et al., 1986; Jinks et al., 1990). This seems to be quite a debatable issue

since there is no agreement on a standardised shape. On the other hand, according to the data gathered in this research study, the shape of the drug does not seem to be such a significant factor towards medication-taking six weeks post-hospitalisation from a rehabilitation hospital to home. This is because, 64.2% of the male respondents and 59.5% of the female respondents responded in the negative.

Data gathered from this research study, reveals that in Question 19, 36.2% of the female participants and 32.1% of the male participants were in an agreement that the taste of the drug affects them with regards to their medication-taking. Literature acknowledges that the taste does affect compliance (Atkinson, 1974). On the other hand, findings obtained from this study shows that taste seems to be a weak factor towards medication-taking six weeks post-discharge. This is because, 64.2% of the male participants and 61.7% of the female participants responded in the negative.

5.3.4 Question 20 to Question 23: Patient-Related Factors

These 4 questions of the 24 closed-ended questions, dealt with patient-related factors (See Appendix 9d). This research study shows that from this section, the percentage of male participants surpassed the percentage of female participants in two out of four statements within the positive category. In Question 20, only 28.6% of the male population and 14.9% of the female population admitted that they took any of their medication in smaller doses than prescribed. Findings gathered from this study shows that more female participants were non-compliant with their medication-taking six weeks post-hospitalisation. The results obtained

for this question clearly conclude that this question appears not to be a major contribution towards improving medication-taking six weeks post-hospitalisation.

A similar pattern is observed in Question 21. Data obtained from this research study show that 32% of the female population and 25% of the male population took any of their medication less frequently than prescribed. This highlights that more females were less compliant with their medication-taking six weeks post-hospitalisation. It is interesting to note, that this question scored the lowest percentage from the male population within the positive category. The results obtained for this question also conclude that this question does not appear to be a major contribution towards improving medication-taking six weeks post-hospitalisation.

Such a conclusion for both questions challenges perhaps a popular belief that, there is a tendency that the patients ration or share their medication particularly for financial reasons. Such results could reflect that the participants value health and therefore would give its due importance over other priorities. Furthermore, a plausible reason might also be that most of the medications taken by the participants, fall under the POYC scheme and therefore would not require to buy or ration the medication. On the other hand, in question 9 of this study, 42.9% of the male population and 27.7% of the female population would consider buying a drug that falls under the POYC scheme should it be out of stock. This continues to confirm that the research participants values health significantly.

The results gathered in Question 20 and Question 21 indicate that in order to decrease non-compliance, there needs to be a greater awareness and knowledge regards taking the medication as prescribed. A plausible reason for the above results might be due to financial difficulties. Therefore, the older person may take a lower dose from the necessary medication so as to allow the medication to last longer. Should this be the case, the health care provider in discussion with the patient may recommend an alternative low cost medication. Such an approach continues to look at the patient as the main protagonist and it might be another way of helping the older person to be more compliant with their medication regimen post-hospitalisation to home.

In Question 22, 61.7% of the female population and 57.1% of the male population admitted that they accidentally skipped taking any of their medication. The result obtained show that more females are less compliant with their medication-taking post-hospitalisation. It is interesting to note that this statement scored the highest percentage from the female and male population within the positive response. These study findings are of great concern because as claimed by Everett Koop (as cited in Osterberg et al., 2005) “drugs don’t work in patients who don’t take them.” Keeping this mind, it is important that such a question is asked to the patients. This might be useful in order to identify any underlying issues and to better understand the patient’s lifestyle. The latter at times may not be given its due importance, however it is equally important to the former and should be considered.

If the patient is not aware of the consequences or does not understand the benefits of taking the medication as prescribed, this will severely curtail the patient's quality of life, well-being and increase the risk of hospital admissions (Barat et al., 2001; Caughey et al., 2010; Corlett, 1996; Cote et al., 2003; Marengoni et al., 2011). To overcome such a barrier, the patient might need to take the medication in conjunction with a daily activity e.g. at meal time. Another possible measure is that the patient invests in an electronic reminder. These measures might potentially help the patient to take their medication independently and also improve medication-taking six weeks post-hospitalisation.

Question 23 looked at whether participants preferred to take their medication at one time rather than at different times. Findings obtained for this statement show that 39.3% of the male participants and 38.3% of the female participants responded positively to this statement. It is noteworthy that none (0%) of the participants were uncertain in their responses. Literature suggests that minimising the number of medications as well as minimising the frequency of dosing are both important factors that need to be taken into consideration and given their due importance. This is so, since both variables have been reported to contribute to the complexity of the drug regimen and therefore both variables have been positively correlated with compliance in medication-taking (Conn et al., 1991; Saini et al., 2009; Schroeder et al., 2004). The above mentioned issue seems to be debatable since other researchers found no association between medication compliance and the complexity of the drug regimen (Isaac et al., 1993; Pushpangandan et al., 1998).

A plausible measure that needs to be taken into account to improve compliance in medication-taking, is encouraging the older person to take an active role and where possible the patient will be involved in any treatment decisions (Donovan, 1995). A simple way of involving the patient is to ask what time of the day (e.g. morning, afternoon, evening) they would prefer to take their medications. The outcome of such a question is important as it is a way of helping the patient feel more involved and acknowledged with regards to their preference in medication-taking. This is an important issue since such a question can only be answered by the older person and it should be respected. Consideration of patients' choice and preference with regards to their medication-taking is of significant importance as it is more likely that the patient will be compliant with their medication regimen post-hospitalisation (Brown & Bussell, 2011).

5.3.5 Question 24: Health Care Team and System-Related Factors

This is the only question out of the 24 closed-ended questions that dealt with health care team and system-related factors (See Appendix 9e). Data gathered from this research study confirms that 100% female participants closely followed by 92.8% male participants admitted that the relationship with the professionals influences their decision to take any of their medication. Such results are quite shocking and highlight that the majority of the sample, favouring the females are in agreement that the relationship with the professionals, is a strong factor towards compliance in medication-taking six weeks post-hospitalisation. Only 7.2% of the male participants reported differently. It is noteworthy that none (0%) of the participants were uncertain in their responses.

Consideration of the patient and the health care provider is of paramount importance. Plenty of studies (Barat et al., 2001; Schneider et al., 2006; Moore et al., 2004; Rubin, 2005; Vermeire et al., 2001; Vik et al., 2004; Vlasnik et al., 2005) have continuously reported that poor communication and poor relationships between the patient and the health care provider has a negative effect on compliance with medication-taking post-hospitalisation. Such a situation needs to be given its due importance because it may have a negative consequence on the older person's quality of life and on the treatment which may be required. To overcome this situation, effective communication plays a very important role to achieve and improve compliance in medication-taking. Another aspect which is equally important, that needs to be taken also into consideration, is the readiness of building a trustworthy relationship between the patient and the health care provider. This relationship needs to be developed in such a way that the older person is given the opportunity to share their health beliefs, attitudes, concerns, perceptions, expectations about the illness and medication.

Furthermore, it is also important that the professional needs to listen, understand and be sensitive towards the patient's needs, work with the patient, communicate in a patient-friendly language, empower and involve the patient and caregivers in any decision making. By adopting such an approach, the patient may improve compliance in medication-taking, feel more confident and valuable in the health care professional, and may further voice their experience with regards to medication-taking post-hospitalisation (Barber, Parsons, Clifford, Darracott, & Horne, 2004; Belcher, Fried, Agostini, & Tinetti, 2006; Haynes, McDonald, & Garg, 2002; Mann et al., 2007; Osterberg et al., 2005; Senior et al., 2004; Ulrik et al.,

2006; Vik et al., 2004). It is equally important that health care providers must keep in mind that patients have a right to take a conscious decision not to take any or some of the prescribed medication, even if they do not agree with such a decision. It is noteworthy that such an action can only be respected if the patient has been assessed and certified that the patient has the capacity to take such a decision. It is also important that the patient is provided with the relevant information so that then the patient will be able to make an informed decision about the matter.

Individual patient factors such as cognitive impairment or severe adverse effects are also significant in medication-taking. Therefore, a crucial recommendation put forward in literature is that health care providers should not only assess the patients' illness and review the medication, but must also, take into consideration the patient's needs and difficulties experienced by the patient. This is so that the patient would be in a better situation to be able to better the compliance rates in medication-taking.

Literature also acknowledges that there needs to be more time and attention dedicated for older persons to ensure that they understand the importance of taking the medication as prescribed and the effect of the medication in view of their respective condition (Butler et al., 2002). Such a measure can also help the health care provider to assess and identify any issues related to medication-taking. All of the above is beneficial and imperative to strengthen the relationship between the patient and the health care provider, improve upon the older person's quality of life, avoid hospital readmissions, decrease health care resources and empower the older person to continue living independently at home (Caughey et al., 2010;

Kripalani et al., 2007; Marengoni et al., 2011; Page et al., 2006; Rollason et al., 2003; Winterstein, Sauer, Hepler, & Poole, 2002).

In light of the above, one must emphasise the importance that the patient needs to be the centre of the discussion, to actively involve the older person in any decision making, to be able to take informed decisions, focus and work according to the individual's needs. Such an approach enables and provides the older person with the opportunity to voice and discuss any issues in relation to their medication-taking. All of these measures may further contribute to improve compliance in medication-taking post-hospitalisation. Moreover, a study carried out by Coleman et al. (2004) claim that sharing the discharge letter, which includes the list of medications together with a summary of the patient's medical history, with the patient's general practitioner decreased hospital readmissions. This therefore draws upon the importance of empowering and encouraging patients and their caregivers to take a more active role during the transition from hospital to home.

Additionally, these measures are consistent with some of the leading theories in health behaviour change with particular reference to the most quoted theories namely the TransTheoretical Model (TTM) (Prochaska et al., 1982; Prochaska et al., 1997) and the Health Belief Model (HBM) (Becker, 1974; Rosenstock, 1974; Rosenstock, et al , 1988) Patient compliance in medication-taking can be looked at as a health behaviour change because both the TTM and the HBM involves multiple of stages and processes that a patient experiences in order to improve compliance rates in medication regimen. The two models compliment one another in such a way that both models focus on the patient as the main protagonist.

The Transtheoretical Model is composed of four core domains. Out of these four domains, the stages of change which is made up of six stages are the popular domain mostly described in literature. Furthermore, the TTM emphasise that the patient needs to achieve a particular stage before entering into the next stage. On the other hand, literature acknowledges that although the TTM is described as a linear model, where it encourages and empowers the patient to move from one stage to another accordingly, the model is best described as a cyclical process. This is so because change, besides being a process, it requires time to occur and it also depends solely on the patient's readiness to change according to the desired health behaviour. It is important for health care providers to understand that a change in behaviour is part of the patient's interpersonal growth. In addition, the patient's outcomes regarding change in the desired health behaviour may be also influential by the behaviour of the health care providers. Therefore, it is recommended that to achieve a successful outcome, in relation to the health behaviour change, is to foster a working collaborative inter-professional team practice based upon a patient-centered approach in conjunction with working according to the patients readiness. Adopting such an approach plays an important role as it moves away from the traditional approach of health behaviour change where on the one hand the health care provider is perceived as the expert and on the other hand the patient is seen as passive but stresses upon the importance of empowering and involving the patient in any decision making in order to be able to achieve the desired behaviour change.

Further research has demonstrated that if a recommended medication regimen is prescribed to the patient and the patient perceives it as beneficial, then there is an

increase possibility that the patient will comply with taking the prescribed medication as required. In addition, patients who believe in the effectiveness of taking the medication is also reported to better compliance rates in medication-taking. The above is in line with the Health Belief Model were it is noted that looking at the model, as well as, understanding all of the six constructs that makes up the model is a very important task as it will enable the health care providers to obtain a better understanding of the patient's view in light of compliance in medication-taking. Such a task may further contribute to improve compliance in medication-taking post-hospitalisation. By understanding better the patient may further consolidate the quality of the relationship between the patient and the health care provider. In addition research acknowledges that such a relationship is a key factor in relation to compliance in medication-taking. In fact, various studies have reported that patients who are satisfied with the relationship of their health care provider, have better compliance rates in relation to their medication regimen (Barat et al., 2001; Schneider et al., 2006; Vermeire et al., 2001; Vik et al., 2004).

5.4 Limitations of the Study

As with any research study, this study has a number of limitations. The first limitation is that the study was carried out in one of the hospitals in Malta which has a particular role in rehabilitation. Therefore the findings of this study cannot be generalised and do not necessarily reflect the reality of the whole population of older persons discharged home from the Rehabilitation Hospital Karin Grech with regards to compliance in medication-taking six weeks post-hospitalisation.

Another limitation of this research study is that, the sample represents research participants who were given a follow-up appointment at Day Hospital or Out-Patients. Participants who were not given a follow-up appointment were excluded from this study. Consequently, had the latter participants been included, different results may have been observed.

A third limitation is the fact that the sample represents research participants who were willing, and motivated to participate in the study. As a result, the participants who were less motivated to participate might also produce different data.

A fourth limitation is that, the researcher does not come from a pharmaceutical/medical field. This contributed to the fact the researcher was unable to assess compliance in medication-taking six weeks post-hospitalisation using direct methods (e.g. blood-level monitoring) and indirect methods (e.g. pill counts).

Another limitation of this research study is that the research instrument was devised by the researcher rather than adopted from a pretested instrument. Although the research instrument was presented and discussed with two senior pharmacists, as well as, carrying out a pilot study, no further statistical tests were used to measure the reliability and validity of the research instrument.

A further limitation is that, as is often possible in research, the participants disclosed only the information that they thought was most relevant for the purposes of this study, or to please the researcher in their responses.

Another plausible limitation in this research study is the fact that the researcher, was an insider to the organisation. This may have possibly influenced the research participants in the way they answered the questionnaire.

5.5 Conclusion

Compliance in medication-taking received much attention in literature and highlights the importance of such a subject in particular in older persons. Numerous studies (Dowse et al., 2005; Murray et al., 2004; Rubin, 2005; Vermeire et al., 2001; Vik et al., 2004) draw on several potential predictors that are imperative in obtaining and improving compliance in medication-taking six weeks from a rehabilitation hospital to home. Furthermore, compliance in medication-taking is extremely complex as it involves multiple predictors which may influence the older persons' decision post-hospitalisation which consequently may have a negative impact on the older persons' quality of life, safety and well-being.

This chapter aimed to answer the research question: 'To what extent are patients over the age of 60 discharged from the Rehabilitation Hospital Karin Grech (RHKG) to home, compliant in their medication-taking: Six weeks post-discharge?'. It is evident that Question 24 received the highest percentage results. This clearly shows that the relationship between the patient and the health care provider is of paramount importance.

Analysis of this research study, concludes that older persons post-hospitalisation encounter difficulties in medication-taking and that an element of non-compliance has been noted throughout the various sections in the questionnaire. For this

reason, a number of recommendations have been drawn up to potentially improve compliance in medication-taking six weeks post-discharge from a rehabilitation hospital to home. These recommendations will be discussed in the final chapter, Chapter 6.

Chapter 6

Conclusion

CHAPTER 6 – CONCLUSION

6.1 Introduction

This is the final chapter of the research study. The first part of the chapter concludes with various interesting observations based on the results obtained from this study. Following the concluding section, 10 recommendations based upon the study, are put forward with the aim to potentially improve compliance in medication-taking six weeks post-hospitalisation from a rehabilitation hospital to home with present and future patients.

6.2 Conclusion

The seventy five patients who agreed to participate in the research study were mainly females. The majority of the patients were in the 70-79 year age cohort, married and admitted from the Southern Harbour Region. It is interesting to note that living alone and living with spouse scored equally as the common form of living arrangements post-hospitalisation. Furthermore, most of the patients were admitted with an orthopaedic condition and were holders of both the yellow and pink medication cards.

All seventy five participants that took part in this research study responded positively in making use of the discharge medication chart. 70.7% of the participants suggested a change in the discharge medication chart. The popular suggestion put forward by the research participants was an increase in print size (58.5%) followed by the insertion of pictograms (26.4%).

The 24 closed-ended questions were analysed by means of the chi-square significance test. The results of this test show that out of the 24 closed-ended questions, the null hypothesis was accepted in 23 questions, since the p-value exceeds the 0.05 level of significance. On the other hand, Question 6, (*"I stopped taking any of the medication due to fear of side effects"*), was the only question that the alternative hypothesis was accepted since the p-value (0.026) was less than 0.05 level of significance. The above findings are not surprising, because the magnitude of the p-value of the chi-square significance test, depends on the differences between the proportions of males and females together with the sample size. When the differences between the proportions are small, the size of the p-value would be close to 1 and the null hypothesis would be accepted. On the other hand, when the differences in proportions are large, the size of the p-value is close to 0 and the alternative hypothesis would be accepted if the p-value is less than 0.05 level of significance. As mentioned above, the sample size also affects the p-value with samples of less than 100 respondents. This means that since there were 75 respondents who agreed to participate in this research study, and therefore the sample was less than 100 respondents, it is very unlikely that the chi-square significance test yields a significant association between the two categorical variables i.e. very unlikely that the p-value is less than 0.05 criteria (Camilleri, personal communication, December 10, 2013).

Findings of this research study were further analysed by inputting the data collected using Microsoft Office Excel Sheet (2007). The results showed that there were 3 questions that both males and females obtained 0% in the uncertain responses. There was only 1 question where 100% of the females closely followed

by 92.8% of the males evidently describe that the relationship with the professionals play an imperative role in relation to compliance in medication-taking six weeks post-hospitalisation to home. The participants had the opportunity of providing suggestions with regards to medication administration. It is noteworthy that 57.3% of the research participants did not come up with any suggestions. On the other hand, the most popular suggestion put forward by the participants, was the implementation of a helpline/freephone service (20.0%). Factors such as taste of the medication and shape of the medication were not considered as very important factors that would hinder compliance in medication-taking in the older population post-hospitalisation.

Analysis of this research study, concludes that older persons post-hospitalisation encounter difficulties in medication-taking and that an element of non-compliance has been noted throughout the various sections in the questionnaire. Looking at the patient as the main protagonist, focusing on the patient's needs and providing the patient with the opportunity to voice one's own experience with regards to compliance in medication-taking post-hospitalisation are all essential components that would assist to improve compliance in medication-taking.

Furthermore, the conclusion of this research study is consistent with some of the leading theories in health behaviour change with particular reference to the most quoted theories namely the TransTheoretical Model (Prochaska et al., 1982; Prochaska et al., 1997) the Health Belief Model (Becker, 1974; Rosenstock, 1974; Rosenstock et al., 1988) and the Social Learning Theory (Bandura, 1977; Rosenstock et al., 1988). The core principle for these theories to be successful

with their interventions is to note and use feedback given by the patients. This continues to emphasize the importance that the patient needs to be at the centre of the discussion. Such an approach may further promote patient's compliance in medication-taking six weeks post-hospitalisation.

6.3 Recommendations

The following ten recommendations would also be of assistance to increase further awareness about compliance in medication-taking six weeks post-hospitalisation once discharged from the rehabilitation hospital to home, as well as developing constructive techniques on ways of improving compliance in medication-taking with present and future patients prior to discharge.

Recommendation 1:

An increase in print size on the discharge medication chart might be a simple and low cost technique to improve patient's compliance in medication-taking post-hospitalisation. Such a measure has been frequently recommended by the research participants. In fact, from this research study, out of 70.7% of the participants who suggested a change in the discharge medication chart, 58.5% mentioned a change in print size. Such a recommendation should be considered in being implemented on the current discharge medication chart given to the patients on the day of discharge at RHKG. This is because it is the patient's own experience that is being shared which must be valued. Furthermore, it might also be a possible measure to help improve compliance in medication-taking compliance six weeks post-hospitalisation. This recommendation is often cited in literature (Dowse et al., 2005; Murray et al., 1986; Vik et al., 2004).

Recommendation 2:

The inclusion of pictograms on the current discharge medication chart might be a possible measure to enhance compliance in medication-taking six weeks post-hospitalisation. Pictograms need to be well designed in such a way that every person may understand the message/ meaning behind the symbol including older persons and caregivers. From this research study, 70.7% of the research participants consider a change in the discharge medication chart. Out of these, 26.4% suggested pictograms. Such a recommendation should also be taken into consideration due to the fact that, it is the patients themselves who came up with this suggestion. These patients opinions should be valued since it is the patient's own experience that is being shared. This recommendation has been also frequently cited by other studies (Dowse et al., 2005; Mizzi, 2002; Murray et al., 1986; Vik et al., 2004).

Recommendation 3:

An improvement in medication-taking six weeks post discharge may be possible through follow-up visits. The most convenient and cost-effective way is that every patient discharged from the rehabilitation hospital to home will be automatically given a follow-up appointment as an out-patient by the pharmacist. In this way, the pharmacist would have the opportunity to monitor the patient's medication over a series of visits and identify any problems that might have arisen before the visits. Additionally, the patient and/or caregiver would also have the opportunity to discuss with the pharmacist any difficulties encountered with regards medication-taking at home. Such a recommendation is beneficial, because should the patient

require a change in treatment this may be carried out on site. This provides a continuum of care and promotes an improvement upon the patient's quality of life.

The other option is that there may be domiciliary visits by a pharmacist. In fact this suggestion was put forward by the research participants (8.0%). This might be more costly and time consuming however from this study it shows that older persons would like some form of follow-up in relation to their medication-taking post-hospitalisation.

Such a recommendation should be considered, because in this way the pharmacist has the opportunity, to see how the medications are stored and taken especially when new medications have been prescribed (Lowe et al., 2000). Also, the pharmacist may discard medications, which are no longer required and clarify any queries that patients/caregivers may have in relation to medication-taking post-hospitalisation (Holland et al., 2005; Stewart & Pearson, 1999). An alternative to the latter, may be carried out by means of a follow-up telephone call. Ideally the pharmacist, or a health care provider should the pharmacist be unavailable, would contact the patient a few days post-discharge and provide if necessary medical support accordingly (Dudas, Bookwalter, Kerr, & Pantilat, 2001; Mistiaen & Poot, 2007; Nelson, 2001). A study undertaken by Aubert et al. (1998) has demonstrated that patients who are provided with social support from health care providers by means of regular contact such as follow up appointments or telephone calls have shown to promote a positive attitude towards compliance in medication-taking. This recommendation in return may potentially improve the

patient quality of life and care along with reducing unnecessary hospital admissions.

Recommendation 4:

The implementation of a helpline/freephone service is a plausible recommendation to promote medication-taking six weeks post-hospitalisation. This was also a suggestion put forward by the eligible patient sample (20.0%). This measure is beneficial to continue gaining a deeper understanding of the patient's present situation, needs and how these needs can be met. Furthermore, such a service might be fruitful so as to encourage older persons to voice their own experience in relation to medication-taking. This information may be useful for present and future patients.

Recommendation 5:

The introduction of monthly meetings held at the Local Councils, Day Centres, Day Hospital/Out-Patients at RHKG and Health Centres is another suggestion mentioned by the respondents who participated in this research study (14.7%). This might be a positive experience of informal learning as it would be an opportunity for older persons to share their own experiences with each other in relation to medication-taking six weeks post-hospitalisation.

Recommendation 6:

A patient/caregiver training session with the pharmacist should be introduced in view of being discharged home. Ideally this would be held a few days prior to the patient being discharged home so that during hospitalisation, the patient and

caregiver will have time to practice handling of medications. Such an approach may continue to understand better the patient's present needs in medication-taking and discuss treatment options. This encourages collaborative working with the patient and the pharmacist.

Recommendation 7:

During the weekly ward rounds, the patient should be at the centre of discussion and should be informed of any adjustments to their treatment charts so that the patient would be aware of the changes taking place. By giving due importance to the patient, such an approach may be beneficial in helping the older person to understand the importance of taking the medications according to the discharge medication chart post-hospitalisation. Furthermore, discussing where possible treatment options, may further promote patient's compliance in medication-taking post-discharge.

Recommendation 8:

Continuous professional training and discussions among health care professionals is important in order to identify in-patients who potentially require support with regards their medication-taking post-hospitalisation. This might prevent any potential risks associated with medications such as unnecessary hospital admissions, adverse drug reactions, and premature need for a nursing home placement.

Recommendation 9:

The set-up of a transport community service so as to deliver the medications to the older person's home accordingly. This service would be beneficial for those older persons who are unable to collect their own medicines. This would facilitate and possibly encourage medication-taking six weeks post-hospitalisation.

Recommendation 10:

The introduction of a shared electronic medication database (e-Pharm). Such records would be available across all hospitals, health centres, general practitioners, and every professional involved in the patient's care. This is ideal so that every time the treatment is reviewed, every health care professional involved in the patient's care will have access to the information. Contrary to current practice, instead of deleting medication from the existing medication cards, which often becomes soiled, the patient's treatment record can be adjusted and updated accordingly. Should the patient need a hard copy, a printed version can be given to the patient/caregiver as required.

It is known that due to multiple morbidities an older person might have multiple health care providers, prescribing various medications. In this way, a shared electronic medication database, decreases the probability that additional medication can counteract concurrent medications and also decreases polypharmacy. This is only possible if there is co-ordination between one health care provider and another across the public and private sector. Further benefits

include that the older person or caregiver does not need to rely on memory with regards to medication-taking.

Taking into account the above mentioned ten recommendations is of crucial importance with particular emphasis to the recommendations put forward by the research participants. This is beneficial so that the needs of the older persons can be better met and be more patient oriented. This is possible by understanding and addressing the needs of the older population as seen from their perspective against the perspective held by the health care professionals. Furthermore necessity for adherence to medication is vital as to improve the patient's well-being, decrease medications errors and hence cut down on health care costs as reduced compliance results in medical complications which compounds a dramatic rise in health care expenses.

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Appendices

Appendix 1

List of Chronic Conditions

List of Chronic Conditions

1. Malignant Diseases
2. Cardiovascular Diseases:
 - (a) Chronic Heart Failure
 - (b) Hypertension
 - (c) Ischaemic Heart Disease
 - (d) Cardiac Arrhythmias
 - (e) Peripheral Vascular Disease
 - (f) Cerebrovascular disease
 - (g) Genetic Dyslipidaemia
3. Respiratory Diseases:
 - (a) Chronic Respiratory Failure
 - (b) Cystic Fibrosis
 - (c) Chronic Obstructive Pulmonary Disease
 - (d) Chronic Asthma
4. Digestive system diseases:
 - (a) Gastro - Oesophageal Reflux Disease
 - (b) Gastric/Duodenal Ulcers
 - (c) Inflammatory Bowel Disease
 - (d) Coeliac Disease
 - (e) Diverticular Disease requiring Stoma Care
 - (f) Hirschprung's Disease
 - (g) Imperforate Anus
 - (h) Small Intestinal Failure
5. Liver diseases:
 - (a) Chronic Liver Disease
6. Haematological Diseases:
 - (a) Inherited Bleeding Disorders
 - (b) Inherited Haemoglobinopathies
7. Nervous System Diseases:
 - (a) Epilepsy
 - (b) Parkinson's Disease
 - (c) Myasthenia Gravis
 - (d) Multiple Sclerosis

- (e) Motor Neurone Disease
- (f) Trigeminal Neuralgia
- (g) Huntington's Chorea
- (h) Dementia
- (i) Schizophrenia
- (j) Psychosis
- (k) Chronic Mood Disorders
- (l) Chronic Neurotic Disorders
- (m) Addiction Disorders
- (n) Chronic Psychiatric Disorders starting in Childhood
- (o) Chronic Eating Disorders
- (p) Cerebral Palsy
- (q) Narcolepsy
- (r) Spinal Cord Pathologies
- (s) Congenital Indifference to pain

8. Renal diseases:

- (a) Chronic Kidney Disease

9. Endocrine diseases:

- (a) Diabetes Mellitus
- (b) Addison's Disease
- (c) Precocious Puberty
- (d) Hypoparathyroidism
- (e) Hypopituitarism
- (f) Hypogonadism
- (g) Enzyme Disorders
- (h) Endometriosis and Adenomyosis
- (i) Pituitary Adenomas

10. Skin diseases:

- (a) Psoriasis
- (b) Chronic Immunobullous Disorders
- (c) Congenital Ichthyosis

11. Infectious Diseases:

- (a) HIV/AIDS and HIV Related Diseases
- (b) Hepatitis B & C
- (c) Tuberculosis
- (d) Hospital Acquired Infections
- (e) Leprosy
- (f) Polio and Post-Polio Syndrome
- (g) Chronic Osteomyelitis

12. Rheumatic Diseases:

- (a) Rheumatoid Arthritis
- (b) Paget's Disease
- (c) Lupus Erythematosus
- (d) Systemic Sclerosis
- (e) Dermatomyositis/Polymyositis
- (f) Polyarthritis Nodosa
- (g) Seronegative Arthritis
- (h) Crystal Deposition Disease
- (i) Polymyalgia Rheumatica

13. Metabolic Disorders

- (a) Inborn Errors of Metabolism

14. Eye diseases:

- (a) Glaucoma
- (b) Vascular Disease of the Retina

15. Immunodeficiency:

- (a) Primary Immunodeficiency Disorder
- (b) Secondary Immunodeficiency Disorder

16. Chromosome Disorders:

- (a) Down Syndrome
- (b) Turner Syndrome
- (c) Prader-Willi Syndrome

Appendix 2

Participants' Letter & Consent Form

Used for the Pilot & Actual Study

*Prepared in the English & Maltese
Version*

Appendix 2a

Participants' Letter & Consent Form

English Version

Participants' Letter

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Date:

Dear Participant,

First of all I would like to express my gratitude for finding time and for your willingness to help me in this research. I am undertaking this project as part of my MGer Degree which I am following at the University of Malta. The aim of this study is to assess patient's medication compliance around six weeks post discharge to home from the Rehabilitation Hospital Karin Grech.

You have been selected to take part in this research and I am asking you whether you accept to take part in this questionnaire which lasts for approximately 30 minutes. I would like to reassure you that the information given will be treated in the strictest of confidence. All data collected will be treated in accordance with the Code of Ethics set up by the Maltese Association of Social Workers and the Data Protection Act (2003). Although the data gathered will be published in a dissertation, your identity will not be revealed as the data gathered will be presented as a whole study and not on an individual basis.

If you accept to participate in this research, I will ask you to sign a consent form giving your agreement. Should there be any question/s that you will not feel comfortable to answer you may withdraw from the study at any time. Furthermore, you are also free to end the study at any stage where you do not feel comfortable.

Once again, thank you for your participation. Should you have any questions please do not hesitate to contact me by email on acas0010@um.edu.mt

Yours Sincerely,

Adriana Castillo

Participants' Consent Form

I, the undersigned, agree to take part in the research carried out by Adriana Castillo. The aim of this study is to assess patient's medication compliance around six weeks post-discharge to home from the Rehabilitation Hospital Karin Grech.

Name and Surname

Signature

Date

Appendix 2b

Participants' Letter & Consent Form

Maltese Version

Ittra Lill-Parteċipanti

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Data:

Għażiż Parteċipant,

Nixtieq l-ewwelnett nuri l-apprezzament tiegħi u niringrazzjak talli sibt il-ħin, u aċċettajt li tgħinni fir-riċerka tiegħi. Bħalissa qiegħda naħdem fuq proġett bħala parti mill-kors MGer Degree ma' l-Universita` ta' Malta. Il-proġett li qiegħda naħdem fuqu huwa biex jara jekk pazjenti li jkunu ilhom madwar 6 ġimgħat illiċenzjati mill-isptar ta' Riabilitazzjoni Karin Grech għad-dar isegwux l-mediċina kif indikat lihom.

Inti ġejt magħżul biex tkun parti minn dan l-istudju għaldaqstant qiegħda nistaqsik jekk taċċettax li tiegħu sehem f'dan il-kwestjonarju li m'intiex ser tiegħu iżjed minn 30 minuta. Naċċertak illi r-risposti li ser tagħtini, ser ikunu ttrattati b'mod kunfidenzjali skond il-Kodiċi t'Etika kif inhi stipulata mill-*Maltese Association of Social Workers* u mill-Att dwar il-Protezzjoni tad-Data (2003). Għalkemm ir-riżultati ta' l-istudju tiegħi ser jiġu ppubblikati f'teżi, l-identità tiegħek mhix ser tkun żvelata u l-informazzjoni miġbura ser tkun preżentata bħala studju kollettiv u mhux fuq bażi individwali.

Jekk inti taċċetta li tipparteċipa f'dan l-istudju, ser nistaqsik biex tiffirmali l-ittra ta' kunsens fejn tikkonferma dan. F'kas li ikun hemm xi mistoqsijiet li tħossok skomda tirrispondihom, għandek il-fakultà li ma tirrispondihomx liberament. Inti ukoll libera li tirtira minn dan l-istudju fi kwalunkwe stadju.

Grazzi għal darb'oħra ta' l-għajjnuna tiegħek. Jekk għandek xi mistoqsijiet tista' tikkuntatjani bl-email fuq acas0010@um.edu.mt

Dejjem Tiegħek,

Adriana Castillo

Formola ta' Kunsens Lill-Parteċipanti

Jiena niddikjara li naċċetta li niehu sehem fir-riċerka ta' Adriana Castillo. L-għan ta' l-istudju huwa biex jara jekk pazjenti li jkunu ilhom madwar 6 ġimgħat illiċenzjati mill-isptar ta' Riabilitazzjoni Karin Grech għad-dar isegwux l-medicina kif indikat lihom.

Isem u Kunjom

Firma

Data

Appendix 3

Participants' Questionnaire

Used for the Pilot Study

*Prepared in the English & Maltese
Version*

Appendix 3a

Participants' Questionnaire

English Version

Questionnaire

Section A

Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
Age	
Locality/Region*	
Status	<input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Widow/er <input type="checkbox"/> Other
Living Arrangements	<input type="checkbox"/> Alone <input type="checkbox"/> With Spouse <input type="checkbox"/> Other
Medication Cards	<input type="checkbox"/> Yellow Card <input type="checkbox"/> Pink Card <input type="checkbox"/> Both Pink and Yellow Cards <input type="checkbox"/> Other

Diagnosis _____

***Northern:** Għargħur; Mellieħa; Imġarr; Mosta; Naxxar; St.Paul's Bay.

Northern Harbour: Qormi; B'Kara; Gzira; Hamrun; Msida; Pembroke; Pieta'; St.Julian's; San Gwann; St. Venera; Sliema; Swieqi; Ta' Xbiex.

Western: Mdina; Żebbuġ; Siġġiewi; Attard; Balzan; Dingli; Lija; Rabat; Mtarfa.

Southern Harbour: Valletta; Vittoriosa; Senglea; Cospicua; Zabbar; Fgura; Floriana; Kalkara; Luqa; Marsa; Paola; Santa Luċija; Tarxien; Xgħajra.

Southern Eastern: Żejtun; B'Buġia; Gudja; Għaxaq; Kirkop; M'Skala; M'Xlokk; Mqabba; Qrendi; Safi; Żurrieq.

Gozo and Comino: Victoria; Fontana; Għajnsielem; Għarb; Għasri; Ta' Kerċem; Munxar; Nadur; Qala; San Lawrenz; Ta' Sannat; Xagħra; Xewkija; Żebbuġ.

Section B

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1. I intentionally stopped taking any of the medication without seeking professional advice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I stopped taking any of the medication because I was feeling better.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I stopped taking any of the medication because I did not see/feel any signs of improvement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I stopped taking any of the medication because I felt sceptic about it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I stopped taking any of the medication because I was feeling worse.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I stopped taking any of the medication due to fear of side effects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I refer to the drug with its generic name.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I experienced difficulty to buy any of the medication due to financial constraints.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. If a drug that falls under the Pharmacy Of Your Choice (POYC), should it be out of stock, I would consider buying it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
10. I feel knowledgeable about my medication. (name/purpose)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I encountered difficulty to go to the pharmacy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I encountered difficulty to read medication labels due to small print.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I encountered difficulty in following instructions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I experienced difficulty in opening the drug container/packaging.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I encountered difficulty to distinguish tablets which look similar in size.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. The size of the drug affects me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. The colour of the drug affects me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. The shape of the drug affects me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. The taste of the drug affects me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. There were times when I took any of my medication in smaller doses than prescribed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. There were times when I took any of my medication less frequently than prescribed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I accidentally skipped taking any of the medication.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments

Appendix 3b

Participants' Questionnaire

Maltese Version

Kwestjonarju

Sezzjoni A

Sess	<input type="checkbox"/> Maskil <input type="checkbox"/> Femminil
Eta'	
Lokalita'/Reġjun*	
Stat	<input type="checkbox"/> Xebba/Ġuvni <input type="checkbox"/> Miżżewweġ/Miżżewwġa <input type="checkbox"/> Armel/Armla <input type="checkbox"/> Oħrajn
Ma' min tgħix	<input type="checkbox"/> Waħdek <input type="checkbox"/> Mal-mara/mar-raġel <input type="checkbox"/> Oħrajn
Kartuna tal-Mediċini	<input type="checkbox"/> Il-Kartuna s-safra <input type="checkbox"/> Il-Kartuna r-roża <input type="checkbox"/> Il-Kartuna s-safra u r-roża <input type="checkbox"/> Oħrajn

Dianjosi _____

***Northern:** Għargħur; Mellieħa; Imġarr; Mosta; Naxxar; St.Paul's Bay.

Northern Harbour: Qormi; B'Kara; Gzira; Hamrun; Msida; Pembroke; Pieta'; St.Julian's; San Gwann; St. Venera; Sliema; Swieqi; Ta' Xbiex.

Western: Mdina; Żebbuġ; Siġġiewi; Attard; Balzan; Dingli; Lija; Rabat; Mtarfa.

Southern Harbour: Valletta; Vittoriosa; Senglea; Cospicua; Zabbar; Fgura; Floriana; Kalkara; Luqa; Marsa; Paola; Santa Luċija; Tarxien; Xgħajra.

Southern Eastern: Żejtun; B'Buġia; Gudja; Għaxaq; Kirkop; M'Skala; M'Xlokk; Mqabba; Qrendi; Safi; Żurrieq.

Gozo and Comino: Victoria; Fontana; Għajnsielem; Għarb; Għasri; Ta' Kerċem; Munxar; Nadur; Qala; San Lawrenz; Ta' Sannat; Xagħra; Xewkija; Żebbuġ.

Sezzjoni B

	Naqbel Hafna	Naqbel	La Naqbel u la ma Naqbilx	Ma Naqbilx	Ma Naqbel Xejn
1. Waqfaft nieħu l-mediċina minn jeddi mingħajr ma ħadt parir professjonali.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Waqfaft nieħu xi tip ta' mediċina għaliex hassejtni aħjar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Waqfaft nieħu xi tip ta' mediċina għaliex ma ħassejtx/rajtx sinjali ta' progress.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Waqfaft nieħu xi tip ta' mediċina għaliex hassejtni xettiku.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Waqfaft nieħu xi tip ta' mediċina għaliex hassejtni aġħar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Waqfaft nieħu xi tip ta' mediċina minħabba biża' ta' <i>side effects</i> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Nirreferi għall-mediċini bl-isem propju tagħhom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Sibta diffiċli biex nixtri xi mediċini minħabba raġunijiet finanzarji.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Jekk nieħu xi mediċina li taqa taħt l-iskema ta' l-Ispiżerija ta' l-Għażla Tiegħek, jekk tkun <i>out of stock</i> , nikkunsidra li nixtriha.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Inħossni li naf biżżejjed informazzjoni dwar il-mediċini tiegħi. (l-isem u l-għan)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Sibta diffikulta' biex immur sa l-ispizerija.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Naqbel ħafna	Naqbel	La Naqbel u la ma Naqbilx	Ma Naqbilx	Ma Naqbel Xejn
12. Sibta diffiċċli biex naqra t- tabelli tal-mediċina minħabba t-tipa irqiqa u ċ- ċokon tal-kitba.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Sibta diffiċċli biex insegwi l- istruzzjonijiet .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Sibta diffiċċli biex niftaħ il- kontenitur/pakkett tal- mediċina.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Sibta diffikulta' nagħraf il- pilloli meta jkunu jixxiebħu u ta' l-istess daqs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Id-daqs tal-pillola tagħmilli differenza.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Il-kulur tal-mediċina tagħmilli differenza.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. It-togħma tal-mediċina tagħmilli differenza.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Il-forma/l-għamla tal- mediċina tagħmilli differenza.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Kien hemm drabi fejn ħadt il-mediċini f'dosi iżgħar milli preskritt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Kien hemm drabi fejn il- mediċina ħadta inqas milli preskritt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Biż-żball qbiżt doża tal- mediċina.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kummenti

Appendix 4

*List of General
Conditions into Specific
Conditions*

List of General Conditions Into Specific Conditions

General Condition	Specific Condition
ORTHOPAEDIC	Fracture Tibia Dynamic Condylar Screw (DCS) Fractured Femur + Dynamic Hip Screw (DHS) Total Knee Replacement (TKR) Fractured Femur + Hemiarthroplasty
MEDICAL	Atrial Fibrillation (AF) Chest Infection Congestive Heart Failure (CHF) Falls

Appendix 5

Sample of the Discharge Medication Chart

English & Maltese Version

Appendix 5a

Sample of the Discharge Medication Chart

English Version

REMEMBER

- ◆ Please read the instructions carefully. If you have any problems do not hesitate to seek advice from your pharmacist, doctor or nurse.
- ◆ Do not change the dose or stop taking your medicines without the doctor's knowledge.
- ◆ Do not give medicines to anyone else, it could harm them.
- ◆ Store your medicines in a cool, dry place.
- ◆ Destroy all medicines when you have finished using them or return them to your pharmacy.
- ◆ When on medication prescribed by your doctor, ask the advice of the pharmacist before buying other medicines.

Prepared by:

.....

Checked by:

.....

Date:

.....

The Rehabilitation 
HOSPITAL Karin Grech

REHABILITATION HOSPITAL
KARIN GRECH
Pharmacy Services
Tel. 22085010/1

DISCHARGE MEDICATION INFORMATION SHEET




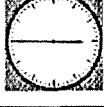

Please take this leaflet with you to your doctor and pharmacist when you require more tablets.

Name:

I.D. Number:

Ward:

Pharmacist:

NAME OF DRUG / DOSE	 8AM	 12PM	 2PM	 6PM	 8PM	REASON FOR MEDICATION	OTHER INFORMATION

Appendix 5b

Sample of the Discharge Medication Chart

Maltese Version


FTAKAR

- ◆ Dejjem agra l-istruzzjonijiet sew. Jekk ikollok xi problemi, staqsi għall-parir tal-ispizjar/a, tabib jew *nurse*.
- ◆ Tibdilx id-doża u twaqqafx medicina mingħajr ma tgħid lit-tabib tiegħek.
- ◆ Tagħtix medicini lil haddieħor. Dawn jistgħu ikunu ta' ħsara.
- ◆ Terfax medicini f'post umdu jew sħun.
- ◆ Warrab il-medicini li ma jkollokx bżonn meta jitwaqqfu jew jinbidlu.
- ◆ Jekk tkun qed tieħu medicini preskritti mit-tabib tiegħek, staqsi għall-parir tal-ispizjar/a meta tkun ser tixtri medicini oħra.

Preparati minn:

l-occekkjati minn:

Data:

SPTAR ta'
Riabilitazzjoni
Karin Grech 

**SPTAR TA' RIABILITAZZJONI
KARIN GRECH**
Servizzi Farmaċewtiċi
Tel. 22085010/1

FTIT INFORMAZZJONI DWAR
IL-MEDIĊINI TIEGĦEK

Jekk jogħġbok ħu dan il-fuljett
miegħek meta tmur għand it-
tabib jew l-ispizjar/a tiegħek.

Isem:

Nru. I.D.:

Sala:

Spizjar:

MEDIČINA/ DOŽA	8AM	12PM	2PM	6PM	8PM	GHALFEJN QED TIEHU L- MEDIČINA	TWISSIJJET

Appendix 6

Participants’ Questionnaire Amended

Used for the Actual Study

*Prepared in the English & Maltese
Version*

Appendix 6a

Participants' Questionnaire

English Version

Questionnaire

Section A

Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
Age	
Locality/Region*	
Status	<input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Widow/er <input type="checkbox"/> Other
Living Arrangements	<input type="checkbox"/> Alone <input type="checkbox"/> With Spouse <input type="checkbox"/> Other
Medication Cards	<input type="checkbox"/> Yellow Card <input type="checkbox"/> Pink Card <input type="checkbox"/> Both Pink and Yellow Cards <input type="checkbox"/> Other

Diagnosis

1) Main Diagnosis _____

2) Secondary Diagnosis _____

***Northern:** Għargħur; Mellieħa; Imġarr; Mosta; Naxxar; St.Paul's Bay.

Northern Harbour: Qormi; B'Kara; Gzira; Hamrun; Msida; Pembroke; Pieta'; St.Julian's; San Gwann; St. Venera; Sliema; Swieqi; Ta' Xbiex.

Western: Mdina; Żebbuġ; Siġġiewi; Attard; Balzan; Dingli; Lija; Rabat; Mtarfa.

Southern Harbour: Valletta; Vittoriosa; Senglea; Cospicua; Zabbar; Fgura; Floriana; Kalkara; Luqa; Marsa; Paola; Santa Luċija; Tarxien; Xgħajra.

Southern Eastern: Żejtun; B'Buġja; Gudja; Għaxaq; Kirkop; M'Skala; M'Xlokk; Mqabba; Qrendi; Safi; Żurrieq.

Gozo and Comino: Victoria; Fontana; Għajnsielem; Għarb; Għasri; Ta' Kerċem; Munxar; Nadur; Qala; San Lawrenz; Ta' Sannat; Xagħra; Xewkija; Żebbuġ.

Section B

1) Do you make use of the 'Discharge Medication Chart'?

1. Yes []

2. No []

a) If yes, would you consider changing anything?

1. Yes []

2. No []

b) If no, why? _____

Section C

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1. I intentionally stopped taking any of the medication without seeking professional advice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I stopped taking any of the medication because I was feeling better.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I stopped taking any of the medication because I did not see/feel any signs of improvement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I stopped taking any of the medication because I felt sceptic about it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I stopped taking any of the medication because I was feeling worse.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I stopped taking any of the medication due to fear of side effects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I refer to the drug with its generic name.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I experienced difficulty to buy any of the medication due to financial constraints.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. If a drug that falls under the Pharmacy Of Your Choice (POYC), should it be out of stock, I would consider buying it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
10. I feel knowledgeable about my medication. (name/purpose)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I encountered difficulty to go to the pharmacy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I encountered difficulty to read medication labels due to small print.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I encountered difficulty in following instructions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I experienced difficulty in opening the drug container/packaging.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I encountered difficulty to distinguish tablets which look similar in size.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. The size of the drug affects me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. The colour of the drug affects me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. The shape of the drug affects me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. The taste of the drug affects me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. There were times when I took any of my medication in smaller doses than prescribed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. There were times when I took any of my medication less frequently than prescribed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I accidentally skipped taking any of the medication.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. I prefer to take my medication at one time rather than at different times.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. The relationship with the professionals influences my decision to take any of my medication.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section D

Comments/Suggestions

1. Do you have any comments/suggestions in relation to medication administration?

1. Yes []

2. No []

a) If yes, what? _____

Appendix 6b

Participants' Questionnaire

Maltese Version

Kwestjonarju

Sezzjoni A

Sess	<input type="checkbox"/> Maskil <input type="checkbox"/> Femminil
Eta'	
Lokalita'/Reġjun*	
Stat	<input type="checkbox"/> Xebba/Ġuvni <input type="checkbox"/> Miżżewweġ/Miżżewwġa <input type="checkbox"/> Armel/Armla <input type="checkbox"/> Oħrajn
Ma' min tgħix	<input type="checkbox"/> Waħdek <input type="checkbox"/> Mal-mara/mar-raġel <input type="checkbox"/> Oħrajn
Kartuna tal-Mediċini	<input type="checkbox"/> Il-Kartuna s-safra <input type="checkbox"/> Il-Kartuna r-roża <input type="checkbox"/> Il-Kartuna s-safra u r-roża <input type="checkbox"/> Oħrajn

Djanjosi

1) Djanjosi Primarja _____

2) Djanjosi Sekondarja _____

***Northern:** Għargħur; Mellieħa; Imġarr; Mosta; Naxxar; St.Paul's Bay.

Northern Harbour: Qormi; B'Kara; Gzira; Hamrun; Msida; Pembroke; Pieta'; St.Julian's; San Gwann; St. Venera; Sliema; Swieqi; Ta' Xbiex.

Western: Mdina; Żebbuġ; Siġġiewi; Attard; Balzan; Dingli; Lija; Rabat; Mtarfa.

Southern Harbour: Valletta; Vittoriosa; Senglea; Cospicua; Zabbar; Fgura; Floriana; Kalkara; Luqa; Marsa; Paola; Santa Luċija; Tarxien; Xgħajra.

Southern Eastern: Żejtun; B'Buġia; Gudja; Għaxaq; Kirkop; M'Skala; M'Xlokk; Mqabba; Qrendi; Safi; Żurrieq.

Gozo and Comino: Victoria; Fontana; Għajnsielem; Għarb; Għasri; Ta' Kerċem; Munxar; Nadur; Qala; San Lawrenz; Ta' Sannat; Xagħra; Xewkija; Żebbuġ.

Sezzjoni B

1) Tagħmel użu mid- '*Discharge Medication Chart*'?

1. Iva []

2. Le []

a) Jekk iva, tikkunsidra li tbiddel xi haġa?

1. Iva []

2. Le []

b) Jekk le, għaliex? _____

Sezzjoni C

	Naqbel Hafna	Naqbel	La Naqbel u la ma Naqbilx	Ma Naqbilx	Ma Naqbel Xejn
1. Waqafn nieħu l-mediċina minn jeddi mingħajr ma ħadt parir professjonali.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Waqafn nieħu xi tip ta' mediċina għaliex hassejtni aħjar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Waqafn nieħu xi tip ta' mediċina għaliex ma ħassejtx/rajtx sinjali ta' progress.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Waqafn nieħu xi tip ta' mediċina għaliex ħassejtni xettiku.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Waqafn nieħu xi tip ta' mediċina għaliex ħassejtni aġħar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Waqafn nieħu xi tip ta' mediċina minħabba biża' ta' <i>side effects</i> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Nirreferi għall-mediċini bl-isem propju tagħhom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Sibta diffiċli biex nixtri xi mediċini minħabba raġunijiet finanzarji.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Jekk nieħu xi mediċina li taqa taħt l-iskema ta' l-Ispiżerija ta' l-Għażla Tiegħek, jekk tkun <i>out of stock</i> , nikkunsidra li nixtriha.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Inħossni li naf biżżejjed informazzjoni dwar il-mediċini tiegħi. (l-isem u l-għan)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Sibt diffikulta' biex immur sa l-ispizerija.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Naqbel ħafna	Naqbel	La Naqbel u la ma Naqbilx	Ma Naqbilx	Ma Naqbel Xejn
12. Sibta diffiċċli biex naqra t-tabelli tal-mediċina minħabba t-tipa irqiqa u ċ-ċokon tal-kitba.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Sibta diffiċċli biex insegwi l-istruzzjonijiet .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Sibta diffiċċli biex niftaħ il-kontenitur/pakkett tal-mediċina.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Sibta diffikulta' nagħraf il-pilloli meta jkunu jixxiebħu u ta' l-istess daqs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Id-daqs tal-pillola tagħmilli differenza.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Il-kulur tal-mediċina tagħmilli differenza.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. It-togħma tal-mediċina tagħmilli differenza.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Il-forma/l-għamla tal-mediċina tagħmilli differenza.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Kien hemm drabi fejn ħadt il-mediċini f'dosi iżgħar milli preskritt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Kien hemm drabi fejn il-mediċina ħadta inqas milli preskritt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Biż-żball qbiżt doża tal-mediċina.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Nippreferi nieħu l-mediċini f'ħin wieħed milli f'ħinijiet differenti.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Ir-relazzjoni mall-professjonisti tinfluwenzani fir-rigward tat-teħid tal-mediċina.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sezzjoni D

Kummenti/Suġġerimenti

1. Għandek xi kummenti/suġġerimenti rigward il-medicina?

1. Iva []

2. Le []

a. Jekk iva, x'inh? _____

Appendix 7

*Permissions Required
for the Research Study*



Ms. Adriana Castillo
3, Goldcoins
Triq il-Kartaginizi
Mosta MST 2792

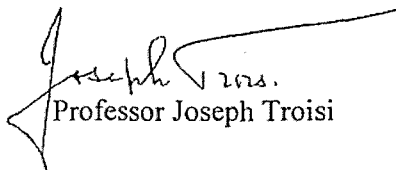
23rd January 2012

Dear Ms. Castillo,

I am pleased to inform you that the University Research Ethics Committee has approved your research ethics proposal.

Kindly please pick up your original proposal form from the European Centre for Gerontology office.

Regards,


Professor Joseph Troisi



3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

The Research Committee
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

12th November 2011

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

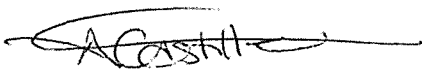
In light of the above, I would like to be granted permission to access research participants within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.

My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully

A handwritten signature in black ink, appearing to read 'ACASTILLO', with a long horizontal flourish extending to the right.

Adriana Castillo

28/11/2011.

To: Adriana Castillo,
3, Goldcoins,
Triq il-Kartaginizi,
Mosta,
MST 2792

**Re Masters Degree dissertation in Gerontology and Geriatrics entitled:
'Compliance in Medication Administration Post Hospitalisation'**

Dear Ms. Castillo,

Thank you for your letter regarding the above thesis.

The Research Committee has granted approval for your study to be carried out at Karin Grech Hospital, which will include access to data on patients.

I will be acting as your link person at the hospital in case of difficulties and further clarification.

Yours sincerely,



Dr. Anthony Fiorini,
On behalf of
The Research Committee,
Karin Grech Hospital.

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Dr. S. Abela
Head of Clinical Services
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Abela,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

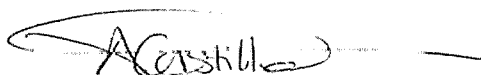
In light of the above, I would like to be granted permission to access research participants who are under your care within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.

My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo



Dr. Stephen Abela
M.D. MRCP (L) M Phil
MHSc 04
Head of Clinical Services
Rehabilitation Hospital

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Dr. A. Fiorini
Consultant Geriatrician
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Fiorini,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

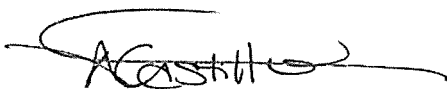
In light of the above, I would like to be granted permission to access research participants who are under your care within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.

My study is being supervised by Ms. Therese Bellia.

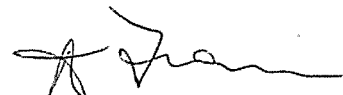
Thanking you in advance,

Yours Faithfully



Adriana Castillo

Permission granted



**DR. A. FIORINI
M.B. ChB MD FRCP
CONSULTANT GERIATRICIAN**

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Dr. B. Farrugia
Consultant Geriatrician
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Farrugia,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

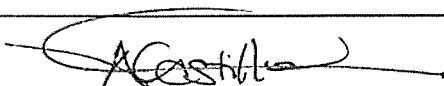
In light of the above, I would like to be granted permission to access research participants who are under your care within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.

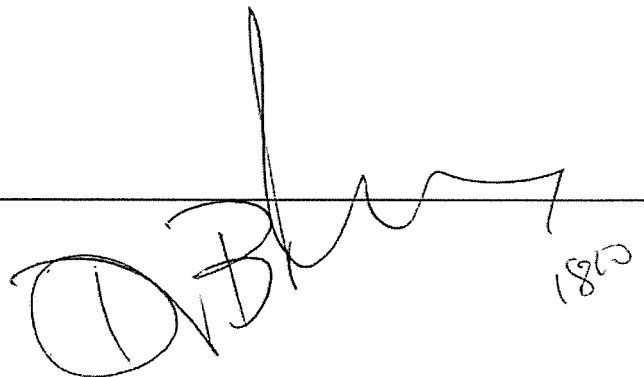
My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo



3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Dr. G. Bugeja
Consultant Geriatrician
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Bugeja,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

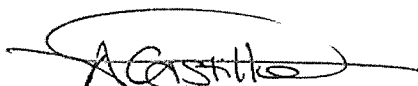
In light of the above, I would like to be granted permission to access research participants who are under your care within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.

My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo



Approved

DR. G. BUGEJA
MD MRCP. DGM CCST
CONSULTANT GERIATRICIAN

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Dr. P. Ferry
Consultant Geriatrician
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Ferry,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

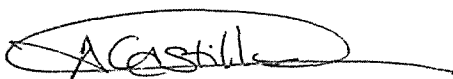
In light of the above, I would like to be granted permission to access research participants who are under your care within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.

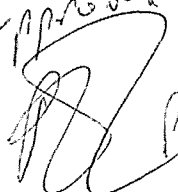
My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo

Approved

P. Ferry
23/11/11

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Dr. A. Vella
Consultant Geriatrician
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Vella,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

In light of the above, I would like to be granted permission to access research participants who are under your care within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.

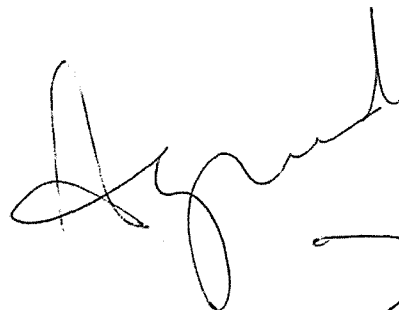
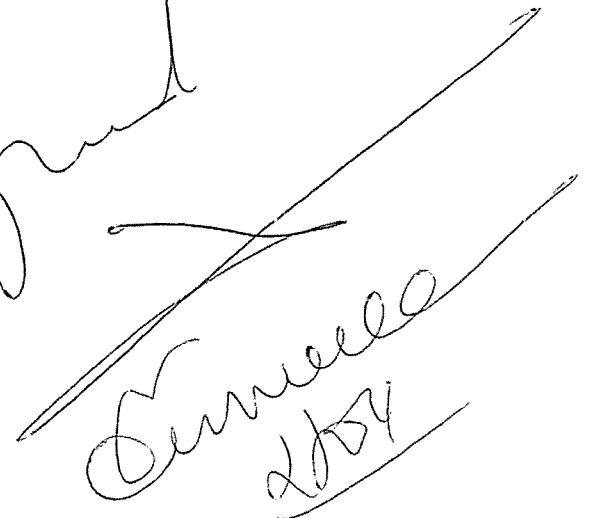
My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo



Therese Bellia
2011

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Dr. M.A. Vassallo
Consultant Geriatrician
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Vassallo,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

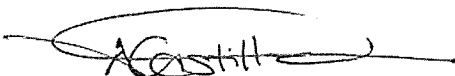
In light of the above, I would like to be granted permission to access research participants who are under your care within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.

My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo



Dr. MA Vassallo
MD, FRCP (Edin.), DGM (Lond)
Consultant Geriatrician

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Dr. S. Zammit
Consultant in Rehab Medicine
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Zammit,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

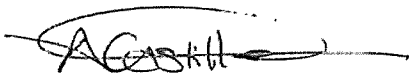
In light of the above, I would like to be granted permission to access research participants who are under your care within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.

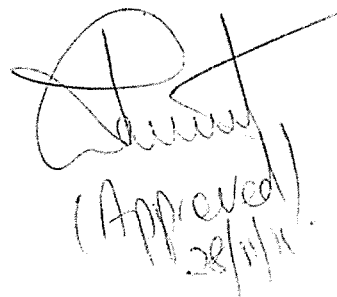
My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo



(Approved)
28/11/11

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Dr. J. Cordina
Consultant Geriatrician
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Cordina,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

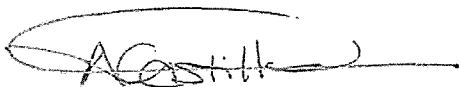
In light of the above, I would like to be granted permission to access research participants who are under your care within the Rehabilitation Hospital Karin Grech.

Attached please find my dissertation protocol for your perusal.


My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo



Dr. J. Cordina
MD. MRCP (UK)
CCT (GIM/GER)
Consultant Geriatrician
20/11/11

3, Goldcoins
Triq Il-Kartaginizi
Mosta MST 2792

Ms. M. Azzopardi
Nursing Officer – Day Hospital
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Ms. Azzopardi,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

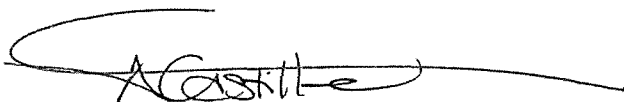
In light of the above, I would like to be granted permission to make use of Day Hospital to be able to carry out face-to-face closed-ended questionnaires to eligible research participants who are given a follow-up appointment at Day Hospital six weeks post hospitalisation.

Attached please find my dissertation protocol for your perusal.

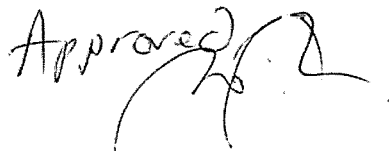
My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo



Dr. S. Zammit
Consultant in Rehab Medicine
Out-Patients
Rehabilitation Hospital Karin Grech
G'Mangia Hill,
Pieta' PTA 1312

25th November 2011

Dear Dr. Zammit,

Re: Compliance in Medication Administration Post Hospitalisation.

I am currently reading a Masters Degree in Gerontology and Geriatrics at the University of Malta. As part of my course, I need to work on the abovementioned title as a final project.

In light of the above, I would like to be granted permission to make use of Out-Patients to be able to carry out face-to-face closed-ended questionnaires to eligible research participants who are given a follow-up appointment at Out-Patients six weeks post hospitalisation.

Attached please find my dissertation protocol for your perusal.

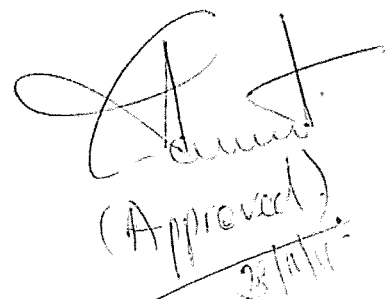
My study is being supervised by Ms. Therese Bellia.

Thanking you in advance,

Yours Faithfully



Adriana Castillo



Appendix 8

List of Secondary Conditions

Secondary Diagnosis	Frequency	Percentage
Hypertension	32	19.4%
Diabetes Mellitus	28	17.0%
Hypercholesterolemia	17	10.3%
Blood Pressure	16	9.7%
Atrial Fibrillation	14	8.5%
Ischaemic Heart Disease	9	5.5%
Fracture Femur	5	3.0%
Peripheral Vascular Disease	5	3.0%
Chronic Heart Failure	5	3.0%
Fracture Humerus	4	2.4%
Asthma	4	2.4%
Renal Failure	4	2.4%
Transient Ischemic Attack	4	2.4%
Osteoarthritis	3	1.8%
Deep Vein Thrombosis	3	1.8%
Hypothyroidism	2	1.2%
Gall Stones	2	1.2%
Essential Tremor	2	1.2%
Cellulitis	2	1.2%
Below Knee Amputation [R]	2	1.2%
Pulmonary Oedema	1	0.6%
Pleural Effusion	1	0.6%

Appendix 9

*The 24 closed-ended
questions divided into 5
sections by topic*

Appendix 9a

Question 1 to Question 6

Condition-Related Factors

Question 1 to Question 6 - Condition-Related Factors

Percentage of answers given by the female respondents

Question	FEMALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1. I intentionally stopped taking any of the medication without seeking professional advice.	10.6%	38.3%	12.8%	23.4%	14.9%
2. I stopped taking any of the medication because I was feeling better.	8.5%	29.8%	4.3%	38.3%	19.1%
3. I stopped taking any of the medication because I did not see/feel any signs of improvement.	4.3%	29.8%	10.6%	40.4%	14.9%
4. I stopped taking any of the medication because I felt sceptic about it.	2.1%	21.3%	23.4%	40.4%	12.8%
5. I stopped taking any of the medication because I was feeling worse.	10.6%	44.7%	14.9%	25.5%	4.3%
6. I stopped taking any of the medication due to fear of side effects.	6.4%	27.7%	19.1%	36.2%	10.6%

Percentage of answers given by the female respondents for each individual question [Question 1 to Question 6]

Question 1 to Question 6 - Condition-Related Factors

Percentage of answers given by the female population

Question	FEMALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
1. I intentionally stopped taking any of the medication without seeking professional advice.	48.9%	12.8%	38.3%
2. I stopped taking any of the medication because I was feeling better.	38.3%	4.3%	57.4%
3. I stopped taking any of the medication because I did not see/feel any signs of improvement.	34.1%	10.6%	55.3%
4. I stopped taking any of the medication because I felt sceptic about it.	23.4%	23.4%	53.2%
5. I stopped taking any of the medication because I was feeling worse.	55.3%	14.9%	29.8%
6. I stopped taking any of the medication due to fear of side effects.	34.1%	19.1%	46.8%

Percentage of answers given by the female population for each individual question [Question 1 to Question 6]

Question 1 to Question 6 - Condition-Related Factors

Percentage of answers given by the male respondents

Question	MALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1. I intentionally stopped taking any of the medication without seeking professional advice.	21.4%	50.0%	0.0%	17.9%	10.7%
2. I stopped taking any of the medication because I was feeling better.	21.4%	25.0%	10.7%	28.6%	14.3%
3. I stopped taking any of the medication because I did not see/feel any signs of improvement.	14.3%	42.9%	10.7%	21.4%	10.7%
4. I stopped taking any of the medication because I felt sceptic about it.	10.7%	25.0%	17.9%	35.7%	10.7%
5. I stopped taking any of the medication because I was feeling worse.	21.4%	28.6%	10.7%	35.7%	3.6%
6. I stopped taking any of the medication due to fear of side effects.	14.3%	57.1%	7.1%	21.4%	0.0%

Percentage of answers given by the male respondents for each individual question [Question 1 to Question 6]

Question 1 to Question 6 - Condition-Related Factors

Percentage of answers given by the male population

Question	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
1. I intentionally stopped taking any of the medication without seeking professional advice.	71.4%	0.0%	28.6%
2. I stopped taking any of the medication because I was feeling better.	46.4%	10.7%	42.9%
3. I stopped taking any of the medication because I did not see/feel any signs of improvement.	57.2%	10.7%	32.1%
4. I stopped taking any of the medication because I felt sceptic about it.	35.7%	17.9%	46.7%
5. I stopped taking any of the medication because I was feeling worse.	50.0%	10.7%	39.3%
6. I stopped taking any of the medication due to fear of side effects.	71.4%	7.1%	21.4%

Percentage of answers given by the male population for each individual question [Question 1 to Question 6]

Appendix 9b

Question 7 to Question 11

Social and Economic-Related Factors

Question 7 to Question 11 – Social and Economic-Related Factors

Percentage of answers given by the female respondents

Question	FEMALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
7. I refer to the drug with its generic name.	14.9%	19.1%	17.0%	34.0%	14.9%
8. I experienced difficulty to buy any of the medication due to financial constraints.	31.9%	31.9%	19.1%	17.0%	0.0%
9. If a drug that falls under the Pharmacy Of Your Choice (POYC), is out of stock, I would consider buying it.	0.0%	27.7%	19.1%	27.7%	25.5%
10. I feel knowledgeable about my medication. (name/purpose)	14.9%	63.8%	2.1%	12.8%	6.4%
11. I encountered difficulty to go to the pharmacist.	21.3%	40.4%	2.1%	17.0%	19.1%

Percentage of answers given by the female respondents for each individual question [Question 7 to Question 11]

Question 7 to Question 11 – Social and Economic-Related Factors

Percentage of answers given by the female population

Question	FEMALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
7. I refer to the drug with its generic name.	34.0%	17.0%	48.9%
8. I experienced difficulty to buy any of the medication due to financial constraints.	63.8%	19.1%	17.0%
9. If a drug that falls under the Pharmacy Of Your Choice (POYC), is out of stock, I would consider buying it.	27.7%	19.1%	53.2%
10. I feel knowledgeable about my medication. (name/purpose)	78.7%	2.1%	19.2%
11. I encountered difficulty to go to the pharmacist.	61.7%	2.1%	36.1%

Percentage of answers given by the female population for each individual question [Question 7 to Question11]

Question 7 to Question 11 – Social and Economic-Related Factors

Percentage of answers given by the male respondents

Question	MALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
7. I refer to the drug with its generic name.	14.3%	35.7%	3.6%	32.1%	14.3%
8. I experienced difficulty to buy any of the medication due to financial constraints.	21.4%	46.4%	14.3%	17.9%	0.0%
9. If a drug that falls under the Pharmacy Of Your Choice (POYC), is out of stock, I would consider buying it.	0.0%	42.9%	14.3%	25.0%	17.9%
10. I feel knowledgeable about my medication. (name/purpose)	10.7%	71.4%	0.0%	10.7%	7.1%
11. I encountered difficulty to go to the pharmacist.	32.1%	21.4%	0.0%	25.0%	21.4%

Percentage of answers given by the male respondents for each individual question [Question 7 to Question 11]

Question 7 to Question 11 – Social and Economic-Related Factors

Percentage of answers given by the male population

Question	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
7. I refer to the drug with its generic name.	50.0%	3.6%	46.4%
8. I experienced difficulty to buy any of the medication due to financial constraints.	67.8%	14.3%	17.9%
9. If a drug that falls under the Pharmacy Of Your Choice (POYC), is out of stock, I would consider buying it.	42.9%	14.3%	42.9%
10. I feel knowledgeable about my medication. (name/purpose)	82.1%	0.0%	17.8%
11. I encountered difficulty to go to the pharmacist.	53.5%	0.0%	46.4%

Percentage of answers given by the male population for each individual question [Question 7 to Question11]

Appendix 9c

Question 12 to Question 19

Therapy-Related Factors

Question 12 to Question 19 – Therapy-Related Factors

Percentage of answers given by the female respondents

Question	FEMALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
12. I encountered difficulty to read medication labels due to small print.	29.8%	42.6%	0.0%	19.1%	8.5%
13. I encountered difficulty in following instructions.	8.5%	42.6%	4.3%	29.8%	14.9%
14. I experienced difficulty in opening the drug container/packaging.	4.3%	34.0%	2.1%	29.8%	29.8%
15. I encountered difficulty to distinguish tablets which look similar in size.	2.1%	14.9%	4.3%	51.1%	27.7%
16. The size of the drug affects me.	57.4%	12.8%	2.1%	14.9%	12.8%
17. The colour of the drug affects me.	17.0%	12.8%	4.3%	38.3%	27.7%
18. The shape of the drug affects me.	21.3%	14.9%	4.3%	34.0%	25.5%
19. The taste of the drug affects me.	21.3%	14.9%	2.1%	36.2%	25.5%

Percentage of answers given by the female respondents for each individual question [Question 12 to Question 19]

Question 12 to Question 19 – Therapy-Related Factors

Percentage of answers given by the female population

Question	FEMALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
12. I encountered difficulty to read medication labels due to small print.	72.4%	0.0%	27.6%
13. I encountered difficulty in following instructions.	51.1%	4.3%	44.7%
14. I experienced difficulty in opening the drug container/packaging.	38.3%	2.1%	59.6%
15. I encountered difficulty to distinguish tablets which look similar in size.	17.0%	4.3%	78.8%
16. The size of the drug affects me.	70.2%	2.1%	27.7%
17. The colour of the drug affects me.	29.8%	4.3%	66.0%
18. The shape of the drug affects me.	36.2%	4.3%	59.5%
19. The taste of the drug affects me.	36.2%	2.1%	61.7%

Percentage of answers given by the female population for each individual question [Question 12 to Question 19]

Question 12 to Question 19 – Therapy-Related Factors

Percentage of answers given by the male respondents

Question	MALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
12. I encountered difficulty to read medication labels due to small print.	14.3%	42.9%	0.0%	17.9%	25.0%
13. I encountered difficulty in following instructions.	3.6%	35.7%	3.6%	32.1%	25.0%
14. I experienced difficulty in opening the drug container/packaging.	7.1%	14.3%	3.6%	39.3%	35.7%
15. I encountered difficulty to distinguish tablets which look similar in size.	0.0%	21.4%	3.6%	39.3%	35.7%
16. The size of the drug affects me.	35.7%	28.6%	0.0%	21.4%	14.3%
17. The colour of the drug affects me.	7.1%	17.9%	0.0%	32.1%	42.9%
18. The shape of the drug affects me.	14.3%	21.4%	0.0%	32.1%	32.1%
19. The taste of the drug affects me.	7.1%	25.0%	3.6%	32.1%	32.1%

Percentage of answers given by the male respondents for each individual question [Question 12 to Question 19]

Question 12 to Question 19 – Therapy-Related Factors

Percentage of answers given by the male population

Question	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
12. I encountered difficulty to read medication labels due to small print.	57.2%	0.0%	42.9%
13. I encountered difficulty in following instructions.	39.3%	3.6%	57.1%
14. I experienced difficulty in opening the drug container/packaging.	21.4%	3.6%	75.0%
15. I encountered difficulty to distinguish tablets which look similar in size.	21.4%	3.6%	75.0%
16. The size of the drug affects me.	64.3%	0.0%	35.7%
17. The colour of the drug affects me.	25.0%	0.0%	75.0%
18. The shape of the drug affects me.	35.7%	0.0%	64.2%
19. The taste of the drug affects me.	32.1%	3.6%	64.2%

Percentage of answers given by the male population for each individual question [Question 12 to Question 19]

Appendix 9d

Question 20 to Question 23

Patient-Related Factors

Question 20 to Question 23 – Patient-Related Factors

Percentage of answers given by the female respondents

Question	FEMALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
20. There were times when I took any of my medication in smaller doses than prescribed.	29.8%	42.6%	0.0%	19.1%	8.5%
21. There were times when I took any of my medication less frequently than prescribed.	8.5%	42.6%	4.3%	29.8%	14.9%
22. I accidentally skipped taking any of the medication.	4.3%	34.0%	2.1%	29.8%	29.8%
23. I prefer to take my medication at one time rather than at different times.	2.1%	14.9%	4.3%	51.1%	27.7%

Percentage of answers given by the female respondents for each individual question [Question 20 to Question 23]

Question 20 to Question 23 – Patient-Related Factors

Percentage of answers given by the female population

Question	FEMALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
20. There were times when I took any of my medication in smaller doses than prescribed.	14.9%	25.5%	59.6%
21. There were times when I took any of my medication less frequently than prescribed.	32.0%	17.0%	51.1%
22. I accidentally skipped taking any of the medication.	61.7%	0.0%	38.3%
23. I prefer to take my medication at one time rather than at different times.	38.3%	2.1%	59.6%

Percentage of answers given by the female population for each individual question [Question 20 to Question 23]

Question 20 to Question 23 – Patient-Related Factors

Percentage of answers given by the male respondents

Question	MALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
20. There were times when I took any of my medication in smaller doses than prescribed.	3.6%	25.0%	10.7%	46.4%	14.3%
21. There were times when I took any of my medication less frequently than prescribed.	3.6%	21.4%	10.7%	50.0%	14.3%
22. I accidentally skipped taking any of the medication.	25.0%	32.1%	0.0%	14.3%	28.6%
23. I prefer to take my medication at one time rather than at different times.	10.7%	28.6%	7.1%	32.1%	21.4%

Percentage of answers given by the male respondents for each individual question [Question 20 to Question 23]

Question 20 to Question 23 – Patient-Related Factors

Percentage of answers given by the male population

Question	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
20. There were times when I took any of my medication in smaller doses than prescribed.	28.6%	10.7%	60.7%
21. There were times when I took any of my medication less frequently than prescribed.	25.0%	10.7%	64.3%
22. I accidentally skipped taking any of the medication.	57.1%	0.0%	42.9%
23. I prefer to take my medication at one time rather than at different times.	39.3%	7.1%	53.5%

Percentage of answers given by the male population for each individual question [Question 20 to Question 23]

Appendix 9e

Question 24

*Health Care Team and System-Related
Factors*

Question 24 – Health Care Team and System-Related Factors

Percentage of answers given by the female respondents

Question	FEMALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
24. The relationship with the professionals influences my decision to take any of my medication.	57.4%	42.6%	0.0%	0.0%	0.0%

Percentage of answers given by the female respondents for each individual question [Question 24]

Question 24 – Health Care Team and System-Related Factors

Percentage of answers given by the female population

Question	FEMALE POPULATION		
	Positive Responses <i>(Strongly Agree/Agree)</i>	Uncertain Responses <i>(Neither Agree nor Disagree)</i>	Negative Responses <i>(Disagree/Strongly Disagree)</i>
24. The relationship with the professionals influences my decision to take any of my medication.	100%	0.0%	0.0%

Percentage of answers given by the female population for each individual question [Question 24]

Question 24 – Health Care Team and System-Related Factors

Percentage of answers given by the male respondents

Question	MALES				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
24. The relationship with the professionals influences my decision to take any of my medication.	32.1%	60.7%	0.0%	3.6%	3.6%

Percentage of answers given by the male respondents for each individual question [Question 24]

Question 24 – Health Care Team and System-Related Factors

Percentage of answers given by the male population

Question	MALE POPULATION		
	Positive Responses <i>(Strongly Agree/Agree)</i>	Uncertain Responses <i>(Neither Agree nor Disagree)</i>	Negative Responses <i>(Disagree/Strongly Disagree)</i>
24. The relationship with the professionals influences my decision to take any of my medication.	92.8%	0.0%	7.2%

Percentage of answers given by the male population for each individual question [Question 24]

Appendix 10

*List of questions
favouring the males and
females*

Appendix 10a

*12 Questions
Favouring the Males*

Question	MALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Condition-Related Factors			
1. I intentionally stopped taking any of the medication without seeking professional advice.	71.4%	0.0%	28.6%
2. I stopped taking any of the medication because I was feeling better.	46.4%	10.7%	42.9%
3. I stopped taking any of the medication because I did not see/feel any signs of improvement.	57.2%	10.7%	32.1%
4. I stopped taking any of the medication because I felt sceptic about it.	35.7%	17.9%	46.7%
6. I stopped taking any of the medication due to fear of side effects.	71.4%	7.1%	21.4%
Social and Economic-Related Factors			
7. I refer to the drug with its generic name.	50.0%	3.6%	46.4%
8. I experienced difficulty to buy any of the medication due to financial constraints.	67.8%	14.3%	17.9%
9. If a drug that falls under the Pharmacy Of Your Choice (POYC), should it be out of stock, I would consider buying it.	42.9%	14.3%	42.9%
10. I feel knowledgeable about my medication. (name/purpose)	82.1%	0.0%	17.8%
Therapy-Related Factors			
15. I encountered difficulty to distinguish tablets which look similar in size.	21.4%	3.6%	75.0%
Patient-Related Factors			
20. There were times when I took any of my medication in smaller doses than prescribed.	28.6%	10.7%	60.7%
23. I prefer to take my medication at one time rather than at different times	39.3%	7.1%	53.5%

**The 12 Questions favouring the male population –
Percentage of answers given by the male population for each individual question according to category**

Appendix 10b

*12 Questions
Favouring the Females*

Question	FEMALE POPULATION		
	Positive Responses (Strongly Agree/Agree)	Uncertain Responses (Neither Agree nor Disagree)	Negative Responses (Disagree/Strongly Disagree)
Condition-Related Factors			
5. I stopped taking any of the medication because I was feeling worse.	55.3%	14.9%	29.8%
Social and Economic-Related Factors			
11. I encountered difficulty to go to the pharmacist.	61.7%	2.1%	36.1%
Therapy-Related Factors			
12. I encountered difficulty to read medication labels due to small print.	72.4%	0.0%	27.6%
13. I encountered difficulty in following instructions.	51.1%	4.3%	44.7%
14. I experienced difficulty in opening the drug container/packaging.	38.3%	2.1%	59.6%
16. The size of the drug affects me.	70.2%	2.1%	27.7%
17. The colour of the drug affects me.	29.8%	4.3%	66.0%
18. The shape of the drug affects me.	36.2%	4.3%	59.5%
19. The taste of the drug affects me.	36.2%	2.1%	61.7%
Patient-Related Factors			
21. There were times when I took any of my medication less frequently than prescribed.	32.0%	17.0%	51.1%
22. I accidentally skipped taking any of the medication.	61.7%	0.0%	38.3%
Health Care Team and System-Related Factors			
24. The relationship with the professionals influences my decision to take any of my medication.	100%	0.0%	0.0%

**The 12 Questions favouring the female population –
Percentage of answers given by the female population for each individual question according to category**