DISCHARGE PLANNING IN SAUDI ARABIA FOLLOWING LIMB INJURY

Submitted by:
Alshammari Mohammed Hamdan
RN, MN, PhD Candidature

A thesis submitted for the requirement of the degree of Doctor of Philosophy

Monash University Faculty of Medicine, Nursing and Health Sciences
School of Nursing and Midwifery

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Alshammari Mohammed Hamdan

Signed:……
April 2015

DEDICATION

My deepest appreciation goes to my parents for their patience and tolerance during my stay away from them; they sacrificed a great deal to raise me and my siblings to be the best. To my father **Hamdan**, for his support, prayers, encouragement, and his resilience that inspired me, and to my mother **May** who raised me to love, care and sincere prayers through all my life and during difficulties, I hope that I have made them proud.

I dedicate also this work to my wife **Amal** for always listening to me talk about my research, . To my two boys **Yousef** and **Abdulsalam** for understanding on those weekend when I was writing this thesis instead of playing together, to my wonderful daughter **May** for making me smile and her sense of humour, and to my son **Hamdan** who was born a few days before my completion. Words are powerless to express my gratitude.

ACKNOWLEDGMENTS

The PhD journey is more than academic rewarding: it is a journey of determination, giving, and a story to tell later in our life. I believe I have had exceptional generous people who made this study possible, and I will never be able to express enough gratitude to those who helped me along the way, but I will attempt to.

I would like to thank **God** Almighty for giving me the strength and the persistence to practise and to dreaming until my dream came true.

My journey has been precious only because of my supervisors' support and kind heart in dealing with my weakness and inexperience in many things. I truly appreciate the time and effort you put into this project and made it possible for me. To my principal supervisors Associated Professor **Virginia Plummer** who gives me valuable, skilled and thoughtful advice, she always gave me helpful encouragement and guidance, and to my co-supervisor Associated Professor **Meredith McIntyre** for enlightening my way, I will never forget your psychological and emotional support during our meetings. Without your recommendations and feedback this study would not be possible.

My sincere thanks to my brother **Muhanned Alshammari** for his continuous encouragement, taking care of my parents, and financial assistance.

I would like to thank Associated Professor **Kais Hamza**, Dr **Aidan Sudbury**, School of Mathematical Sciences Monash University, and **Wadi Alonizi** for their assistance with data analysis and statistics support.

I would like to extend my thanks to Associate Professor **Mustafa Bodrick** Director of Clinical Nursing Education at King Abdulaziz Medical City KAMC for granting me a scholarship, guidance and advice, I cannot forget your endless support and encouragements, I truly cannot thank you enough for everything you have given me during my time at KAMC.

I am also thankful to Associate Professor **Rosemary Clerehan** for language and learning support during my candidature.

Finally, I would like to thank research **Participants**, who agreed to participate in this research and showed me a lot of trust and honesty., Without their spontaneous participation, this study would not be possible.

ABSTRACT

Aim

The aim of this study is to explore the adequacy and appropriateness of approaches to discharge planning for patients with non-major limb injury (NMLI) in Saudi Arabia (SA) hospitals, and identify factors that could lower the number of patients making unplanned returns to Emergency Departments (ED), exploring how they fit together in a system, to determine which models or systems or philosophies fit well with the Saudi context.

Background

Trauma is the leading cause of morbidity, mortality and long term disability in SA and is associated with the highest number of hospitalizations, ED presentations and out-patient visits. Patients with NMLI in particular may be unable to stand or walk or complete other activities of daily living (ADLs) independently, when discharged. One of the most important outcomes of discharge planning for those with limb injury is the patient's access to adequate and appropriate information as a resource for making health related decisions. Research indicates that one possible pathway to a discharge without adverse events would be through systematic and evidence-based practice of the discharge process.

Design

A mixed method sequential explanatory design was utilized for the study. In Phase One, a convenience sample of 302 participants with NMLI were invited to complete an anonymous questionnaire when they presented to EDs and Out Patients Departments (OPD) in four SA hospitals. Phase Two involved face-to-face semi-structured interviews with 10 Orthopedic nurses at the same participating hospitals.

Results

The most common cause of limb injury in this study was falls (n= 139) 46% followed by pedestrians injured during Road Traffic Accidents (RTA) (n=78) 25.8%. Almost half (n=139) 46% of participants had unplanned returns to ED. The causes behind returning vary; however, cast complications (n= 105) 34.5% and pain (n= 24) 8% were the most common causes for those patients re-presenting. Frequencies increased as age increased, and decreased as discharge preparation increased ($P < 0.001$). A similar pattern was observed between clarity of instructions and unplanned ED return. Patients who received verbal instructions in

their primary language and from nurses and doctors (multidisciplinary team) rated the discharge preparation significantly higher compared to the other types of instructions ($P < 0.001$). those with lower limb injury and the elderly have less self-care ability compared to young and those with upper limb injury, which was not surprising.

Nurses in Phase Two reported navigating patients through the discharge process, providing them with follow up appointments and discharge needs for home through an often complicated process of separate discharge from different specialists and care providers. Instructions were typically given both in writing and verbally, and the following discharge instructions were problematic causing complications and return visitation. However, this can be avoided with clear instructions. Patient's misinterpretation of fatalism, the failure to use reasoning and escape responsibility results in putting their life in danger.

Conclusion

This study is likely to inform a new understanding of discharge planning arising from the experiences of the participant nurses and patients. The integration results together enabled the forming a model to describe the factors that were felt by participants to positively impact patient discharge outcomes.

LIST OF ACRONYMS

ADL	Activities Daily Living
ANOVA	Analysis of Variance
ANA	American Nurses Association
BSN	Bachelor of Science in Nursing
COPD	Chronic Obstructive Pulmonary Disorder
DP	Discharge Planning
ED	Emergency Department
EBP	Evidence Based Practice
ESDP	Early Screen for Discharge Planning
ITS	Intelligent Transport Systems
IRB	Institutional Review Board
GP	General Practitioner
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
KAMC	King Abdulaziz Medical City
KFMC	King Fahad Medical City
KFSHRC	King Faisal Specialist Hospital and Research Centre
KSMC	King Saudi Medical City
KKGH	King Khalid General Hospital
LOS	Length of Stay
KSA	Kingdom of Saudi Arabia
MIPS	Ministry of Interior and Public Security
MOH	Ministry of Health
MOHE	Ministry of Higher Education
MOEP	Ministry of the Economy and Planning
MSN	Master of Science in Nursing
MUHREC	Monash University Human Research Ethics Committee
NMI	Non-major Injury
NGH	National Guard Hospital
NSW	New South Wales
OPD	Out Patient Department
PBUH	Peace be Upon Him
PHD	Doctor of Philosophy
PCP	Primary Care Physicians
RTA	Road Traffic Accident
RMH	Riyadh Military Hospital
RN	Registered Nurse
SA	Saudi Arabia
SD	Standard Deviation
SCERIH	Standing Committee on Ethics in Research Involving Human
SF36	Self Function 36
SPSS	Statistical Package for Social Sciences
UAE	United Arab Emirates
USA	United States of America
UK	United Kingdom
WHO	World Health Organization

GLOSSARY

Agency is defined in this study as a Muslim cleric who is considered to have knowledge in Islam and reference when concern happened. Some Muslims rely on their opinion before health professional advice, believing they could treat certain illness.

Allah: Muslim's God

Alhamdulillah: Thanks be to God. It is an Arabic word.

Discharge planning: The term 'discharge' is broadly defined as "the processes, tools and techniques by which an episode of treatment and/or care to a patient is formally concluded by a health professional or a health care provider". Therefore, discharge planning is the preparatory process which is now recognised internationally as a means to promote post-discharge patient safety, by ensuring that the environment and the available support are adequate to promote recovery and prevent an unplanned hospital re-admission

Dua: Arabic word meaning to call out, literally meaning invocation. Muslims regard this as profound act of worship.

Evil eye is a human look believed to cause harm to someone or something else whether intentionally or non-intentionally to harm, some people translate it as malignant look. Also, if someone praises something too much such as a new house or new car this can bring on the evil eye. The supernatural harm may come in the form of anything from a minor misfortune to disease, injury or even death; in many places the evil eye is taken seriously.

Expatriates: Foreigners who work in a health care setting, or other professionals in Saudi Arabia.

Hadiths is a report of the sayings and activities of prophet Muhammad and his companions. This report had a profound and controversial influence on modelling Islam rolls, and it is an important tool for understanding the Quran.

Inshallah: Arabic word meaning if God is willing: for example, if you ask a patient if he is going to come to the next appointment, the patient will reply: Inshallah I will come to my next appointment, meaning most likely they will not be willing to come. Inshallah is a common Arabic term used when they are not willing to fulfil their commitments.

Lower limb injury is defined as an orthopedic injury that involves the foot, or leg. Lower limb fractures account for approximately one third of all fractures in UK and this injury appears to be associated with a poor functional outcome.

Major injury was defined as an injury to hip or knee replacement, injury to viscera, the skull, spine, chest, spine, pelvis, a crush injury, or having been involved in an accident in which there was a fatality.

Non-major injury was defined for this study as upper or lower limb injury that is not life threatening, and the patient has not experienced, in the same episode, orthopaedic injury to multiple limbs .

Orthopaedic injury was defined for this study as injuries to the bones, including fractures, traumatic amputations, dislocations, and associated, nerves, ligaments and muscles.

Quran: The Muslim holy book, which Muslims believe to be a revelation from God to Prophet Muhammed.

Sadaqah is a form of voluntary charity in which money or food is distributed to poor people for Allah's pleasure and to avoid the possibility of bad events such as the evil eye.

Unplanned Return to ED is defined in this study as an unscheduled return visit to the ED or early return to ED, as a patient presentation for the same chief complaint of discharge from the ED or outpatient department. Low number of unplanned returns are considered as one of the quality indicators of ED services.

Upper limb injury is defined as an orthopedic injury that involves the hand, the arm or the shoulder. Upper limb injuries contribute significantly to the workload of EDs, and they are reported to be the most frequent injury.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER ONE: INTRODUCTION

1.1 Introduction

Trauma is the leading cause of morbidity, mortality and long term disability in the Kingdom of Saudi Arabia (KSA), and is associated with the highest number of hospitalizations, Emergency Department (ED) presentations and out-patient visits (Al-Ghamdi, 2003; Al-Naami, Arafah, & Al-Ibrahim, 2010; Bendak, 2005; Sadat et al., 2015). Statistics demonstrate that even in developed countries such as the UK, USA and Australia, trauma is the leading cause of mortality for those aged 1-44 years (Stevens, Corso, Finkelstein, & Miller, 2006). The World Health Organization (WHO) predicts that in developing countries, such as Saudi Arabia (SA), road trauma will be the third ranking cause of mortality by the year 2020, after cardiovascular diseases and mental health (Mathers, Fat, & Boerma, 2008). Trauma is therefore a significant public health issue, both in Saudi Arabia and internationally. A systematic approach to trauma care and prevention of injury through safety campaigns, particularly at workplaces and on roads, has resulted in significant reductions in mortality and morbidity in developed countries (Cameron, Jellinek, Kelly, Brown, Little 2009).

In Saudi Arabia, trauma care and injury prevention programs are mainly focused on road traffic accidents (RTA) as it is the principal cause of death for males aged 16-36 years. In a country where women do not drive, they are less likely to be affected. According to the WHO, Saudi Arabia now holds the unenviable world record for highest number of road accident deaths in Arab and Gulf regions (Centers for Disease Control and Prevention, 2012). The number would be significantly higher than that recorded if it included those who subsequently died of their injuries in hospitals. The statistics include only those who died at the scene or while being transported to the hospital following a traffic accident (Bener, Abu-Zidan, Bensiali, Al-Mulla, & Jadaan, 2010). Therefore, the human and financial cost to the

country is enormous. Klenk and Kovacs (2003) reported that the size of the problem was so significant that there was no Saudi family that does not have a family victim, or victims or a handicapped member, as a result of RTA. In November 2012, Zeina Nazer, the Managing Director of Innova Consulting and the Secretary General of Intelligent Transport Systems (ITS) Arab summed up the magnitude of the costs by the statement "Saudi Arabia spends $6 billion per year on the management of car accidents, and $250 million per year on medical care for those injured on Saudi roads, while an average of 19.1 deaths a day makes them among the most dangerous in the world for drivers" (Zeina, 2012, p. 1) .

Of those that survive the RTA associated trauma, 50% have a major injury (for example multiple fractures, organ damage) and 50 % have a non-major injury which can be managed for example with a brief period of hospitalization or discharge home directly from the ED (Cameron et al., 2009). Al-Naami et al. (2010) reported that in some government hospitals, 80% of hospital beds are occupied by those with trauma-injury arising from RTAs. This means that only 20% of beds and presumably other resources such as operating theatres, radiology departments and pathology services are available to patients with injury or illness due to other causes. Health services need to strive for optimum efficiencies in bed management especially for the non-major shorter length of stay cases that turn over much faster. It is generally accepted that timely and well prepared discharge models are the keys to efficiency in a system with overburdened EDs and limited rehabilitation streams (Shepperd, Parkes, McClaran, & Phillips, 2013; Yam et al., 2013). In this study, for the first time, the researcher planned to focus on the approaches to discharge care for a sub group of non-major injuries, those with defined categories of orthopaedic limb injury.

1.2 Background

The Kingdom of Saudi Arabia (KSA) has witnessed rapid infrastructural and economic development in the last three decades. This includes the modernization process which has resulted in extensive urbanization and increased inner city populations. The process of development has resulted in an unprecedented growth in the construction of buildings and highways, and more vehicles on the roads. According to Brown (2005), a negative consequence of this has been an increase in major traumas and toxicological syndromes. In its annual report for the year 2012, the Ministry of Interior and Public Security (MIPS) in the Kingdom of Saudi Arabia reported that in the previous year, there were 485,913 accidents which resulted in 7,153 deaths and 611,000 injured. Al-Naami, Arfan, and Al-Ibrahim (2010) reported that 81% of deaths in government hospitals are those admitted as victims of Road Traffic Accidents (RTAs). These statistics illustrate the magnitude of the problem of road trauma in Saudi Arabia (SA). Table 1.1 presents the fatality rates per 100.000 of population in the Gulf countries and Australia. It shows the disproportionately higher fatality rate in SA compared to other Gulf countries, and particularly in comparison with Australia which has a similar size population. An important question is whether the health services in SA have witnessed parallel changes in the treatment and management of industrial and traffic accident trauma victims, numbers of whom have increased in parallel with the development of the country.

Table 1.1 Estimated Fatalities Population and Fatality Rate Per 100,000

Country	**Population 2011**	**Total Number Killed**	**Road fatalities per 100,000 population**
Saudi Arabia	27, 448,086	7,157	26.3
Kuwait	2,736,732	374	16.5
Qatar	1,758,793	228	14.0
United Arab Emirate	7,511,690	826	12.7
Australia	22,268,384	1,363	6.1

(World Health Organization, 2013)

1.3 Context of Saudi Arabia

The Kingdom is located in Southwest Asia at the crossroads of Africa, Europe and Asia, and it is the largest country in the Arabian Peninsula, occupying approximately 80% of the area of the latter. It is bordered on the south by Yemen and Oman, on the north by Jordan, Iraq and Kuwait, on the east by the Arabian Gulf, Qatar and the United Arab Emirates and on the west by the Red Sea. The capital city of Saudi Arabia is Riyadh, which is located in the central region of Saudi Arabia (Ministry of Economy and Planning, 2015).

Figure 1.1 Major Cities and Towns in KSA

The most populated area of the Mecca region, which contains also the major city of Jeddah, home to about 26 percent of the total population. Other densely populated centres include the clustered Eastern province cities of Dammam, Ad Dhahran and Khobar. The less populated areas stretch out at the Kingdom's periphery to the extreme south and north. The country covers an area of approximately 2,400,900 square kilometres (Graham, Gallagher, & Bothe, 2013).

The KSA began to develop rapidly following the discovery of subterranean oil in 1938. This discovery launched the Kingdom on a path of rapid social and economic expansion. The oil boom and the extraction of natural gas initiated an era of growth in the cities that continues up to today. Saudi Arabia currently holds some 25 per cent of the remaining proven oil reserves in the world. At the 2005 rate of production of nearly 11 million barrels per day, the reserves are estimated to last about another 75 years, (Niblock, 2013). According to Niblock (2013) 90 to 95 percent of Saudi Arabia's exports comprises petroleum products.

1.3.1 Population

According to the national census of 1974, the Saudi population at the time was 6.9 million. However, in 1985, just 11 years later, the United Nations (UN) estimated the population of SA to be 11.6 million. This rapid increase in population was primarily attributed to a high birth rate among Saudis (Mufti, 2000; Searle & Gallagher, 1983). As a result, SA has a relatively young population. According to Mufti (2000), there was also a rapid decline in the mortality rate because of the improving economic status and health services.

The most recent census conducted by the Ministry of the Economy and Planning (MOEP) (Ministry of Economy and Planning, 2015) indicated a population of approximately 29.2 million. Saudi citizens accounted for 72.9 % of the total population, the remainder being expatriates. Of the Saudi citizens, 50.4 % were male and 49.6 % female. The proportion of Saudi citizens below 30 years of age is 72.6 % of the total Saudi population, and those below 15 years of age constitute 45.2 %, (Ministry of Economy and Planning, 2015). The UN projections expect the Saudi population to reach 44.8 million by 2025 (Mufti, 2000).

This rapid population rise has resulted in a very youthful population with a median age of 26.4 years (Ministry of Economy and Planning, 2015). Consequently, young drivers

predominate and contribute to a disproportionately larger proportion of traffic crashes and injuries than their more experienced counterparts. The problem of young driver-related road trauma is well documented in terms of its nature and magnitude (Hinchcliff, Poulos, Ivers, & Senserrick, 2011; World Health Organisation, 2013). Examples of the nature of the problem in Saudi Arabia include risky driving behaviors such as speeding, 'drifting', under-age driving and driving while under the influence of drugs or alcohol, although this is a cultural taboo in the Saudi society (Almutairi, 2012).

A sizeable majority of Saudi citizens belong to the Muslim faith, 90 to 95 per cent of whom comprise Sunni Muslims, a very large proportion of them adhering to the Wahhabi subsect. About 2 million Saudi citizens belong to Shia - the other major sect. They live mostly in the eastern region of Saudi Arabia. By ethnicity, 90% are Arabs, and the rest mixed African-Asians (Beranek, 2009). Arabic is, therefore, the dominating official language. Saudi society is governed by the Islamic law.

1.3.2 The cultural influences of fatalism

The Kingdom of Saudi Arabia is a country of significance to all Muslims in the world. The holy cities - Makah and Medina are located in the KSA. The Holy City - Makah is the birthplace of both Prophet Mohamed as well as of Islam, and therefore, for Muslims it is the holiest place on Earth. Muslims, regardless of where they live, turn in the direction of Makah to pray, five times every day. Muslims also believe that life is predestined and controlled by Allah. Most Saudis are extremely pious and attend to their formal religious obligations punctually and diligently.

The concept of fatalism is defined as '*the doctrine that everything in life is predetermined by fate and in turn unalterable'* (Hamdy, 2009, p. 179) However, fatalism in Islam refers to the belief that God created the ways of doing things in life, including treatments of ailments and medication. The discovery of those ways, achieving their objectives and the appropriate matching between those ways and their objectives, is totally in the hands of God. For example, an analogy for fate is the perception that if there is an undiscovered treatment for cancer, all attempts to find it will not be successful without God's will (Greenfield, 2013; Hamdy, 2009). This means that Muslim believers consider all their life experience either joyful or painful as good for them, as when they experience joy they thank God and when they experience pain they also thank God for the compensation they will get later in life or in the after-life (Hamdy, 2009).

The practice of Islam and its associated morals and values form an inseparable part of the culture of the Kingdom. Saudi culture which is based on the teachings and practice of Islam plays a major role in determining the social attitudes of Saudi people. Islam embodies the spiritual, material, intellectual and scientific aspects, and covers all the knowledge, values and the moral commitment to a Saudi's life. Environmental factors, level of education and economic status also play a part in shaping the culture of Saudis. However, it is the framework of Islamic beliefs that underlies all the socio-economic developments in KSA (Aldossary, While, & Barriball, 2008; Almutairi, 2012; Zakari, Al Khamis, & Hamadi, 2010). This is explored further in Chapter Two.

Saudi Arabia is an Islamic absolute monarchy, and is governed by ministerial rule. Searle and Gallagher (1983) point out that Islam is a highly traditional religious and cultural force; it demands strong, dynamic action which, when applied to health, can be a resource against

fatalistic and passive tendencies. On the other hand Greenfield (2013)'s view is that Islam is essentially fatalistic, which builds a tragic view that accepts the inevitability of negative outcomes. That has unfortunate implications at the medical level, where individual effort begins to seem as meaningless, leading to the following thoughts: If Allah wants an incident to happen, it will. If he does not, it will not. Human effort is almost irrelevant. Therefore, medical interventions by doctors and nurses would have no impact on treatments. Death is inevitable. Medical workers cannot be held responsible for what Allah has chosen to do. Even with the best of intentions, fatalism seeps into their actions and reactions.

However, attempts have been made to show that the Muslims' attitude is not one of fatalism. Muslims can be seen to rely on ''agency'' when refering to fatalism, and the question needs to be asked. Under what contexts do Muslims rely on the acceptance of God's will? Disposition of forbearance can provide great social and psychological relief to a patient. One tendency for Western scholars' is to view the cultivation of steadfastness as passive. However, alternatively, it can be viewed as an active manipulation of the religion to serve as a comfort mechanism, or to placate the disadvantaged (Hamdy, 2009).

Understanding these religious beliefs about patients with limb injuries at discharge in KSA will provide nurses with the tools and skills to utilize such cultural and religious beliefs in favour of improving and enhancing patients' psychological wellbeing and in turn their physical health outcomes. At the discharge stage nurses who have generally powerful critical knowledge for analysing how believers, particularly Muslim believers, face such life experiences, particularly given the prevailing religious way of life in Saudi Arabia can turn the negative perception and interpretation of pain, suffering, physical limitation and social

problems into a positive experience that leads to positive and effective health outcomes (Almutairi, 2012; Chen, Tang, & Chen, 2012; Hamdy, 2009).

1.3.3 Health Services

There are two main health service sectors in the Kingdom, namely the government and the private sector. The government sector is composed of the Ministry of Health (MOH) as the major health care provider, in addition to other independent government agencies that serve specific populations, such as the National Guard, and the Military Alliance. The emergency care services in KSA provide free health care to those people who are seriously ill and need immediate attention (Ministry of Health, 2011; Qutub, AlJewair, & Leake, 2011). Private hospitals are self-governed and self-financed but are supervised by the MOH, and patients either pay for care themselves or through one of a variety of health insurance schemes (Qutub et al., 2011).

As a result of the significant socio-economic improvement in the past 30 years, the health services in SA are now considered to be one of the most highly developed and safe systems in the world. The number of hospitals has risen from 75 in 1970 to 542 hospitals in 2012, of which, 415 are government and 127 are private hospitals (Ministry of Health, 2013). The SA government has committed to providing high quality health care to residents, with the ultimate goal of providing free and accessible health care services for every Saudi citizen and expatriate workers in the public sector.

To minimize the impact of RTAs on injury, there are suggestions that a national or regional multidisciplinary trauma center could be developed and implemented in SA (McKenzie., 2006). Essential components of the system should include injury prevention, pre hospital care, hospital care, rehabilitation, system administration, trauma care education and training,

trauma care evaluation and quality improvement, along with the participation of the society (Hoyt & Coimbra, 2007). Research has found a significant decrease in morbidity and mortality after the implementation of such centers were developed in USA (Al-Naami et al., 2010; MacKenzie et al., 2006). However, according to several studies conducted on health care systems, quality improvement programs for nursing care and resources are remain limited, which impacts on the effectiveness of patients care, discharge care systems and health outcomes (Al-Naami et al., 2010; Mahrous, 2013). Moreover, in SA, due to difficulties in the accessibility to health care policy manuals, guidelines and regulations for health providers, their level of performance and compliance to nursing care standards are negatively affected (Al-Naami et al., 2010). According to other studies on the standards of health care in SA, it has been found that the care provided for people with injuries is not meeting quality expectations (Mahrous, 2013; Qutub et al., 2011). Indeed, today in SA hospitals there are no guidelines issued by the health authorities on how the discharge process should to be carried out. Therefore, the practice will vary hospital to hospital and according to health professionals' own initiative, but often discharge planning is minimalized.

1.4 Discharge Planning

Discharge planning according to Zarle's (1987) model is a multidisciplinary process which involves the cooperation and coordination of several teams of people inside and outside the hospital. Modern discharge planning has been frequently characterized as a more complex process than the routine preparation of patients for hospital discharge by a single health care discipline (Anthony & Hudson-Barr, 2004; Barach, 2013; Bradley, Sipsma, Horwitz, Curry, & Krumholz, 2014; Durvasula et al., 2015; Knier, Stichler, Ferber, & Catterall, 2015; Shepperd et al., 2013). It had been suggested that the process would ideally comprise a comprehensive assessment of consumers' range of needs by a team of nurses, social workers,

physicians, and /or designated discharge planners (Ben-Morderchai, Herman, Kerzman, & Irony, 2010).

Patients with limb injury are unable to stand or walk or complete other activities of daily living (ADLs) independently when discharged, and therefore, the role and responsibility of the patient's family in assisting with post discharge care cannot be overemphasized (Ben-Morderchai et al., 2010; McMurray, Johnson, Wallis, Patterson, & Griffiths, 2007). One of the most important outcomes of discharge planning for those with limb injury is the patient's access to adequate and appropriate information as a resource for making health related decisions. The need for information differs between patients, given the variability in people's level of health knowledge and previous experiences in dealing with healthcare issues. These are encompassed in the conceptual notion of health literacy, the ability to find, understand and assess health information and health services.

Indeed, discharge of patients with limb injury has been shown to be associated with physical and/or psychological distress and health decline, leading to a burden for caregivers and communities. Research indicates that one possible pathway to a discharge without adverse events would be through systematic and evidence-based practice of the discharge process (Altallal, 2013; Forster et al., 2004; McCarthy et al., 2007). Therefore, the question needs to be raised: Is the currently practiced discharge process for patient with limb injury evidence-based? A growing number of authors have indicated that additional research was required to demonstrate the specific outcomes associated with discharge planning to wisely deploy health care resources (Barach, 2013; Ben-Morderchai et al., 2010; Halasyamani et al., 2006; Kimmel et al., 2012; Knier et al., 2015; Shepperd et al., 2013).

1.5 Discharge care in Saudi Arabia

This study is about the need to better understand the process and clinical outcomes of discharge planning for non-major limb injuries and is expected to gather valuable information for systematic discharge care in the SA hospital, home and community. This is in the context of an increasing emphasis in recent years by health services globally, in developing cost effective strategies for shortening length of stay (LOS) between admission and discharge, and quicker discharge of patients. It is therefore important to explore the adequacy and appropriateness of discharge planning and preparing patients for their role in their own recovery. It is particularly so in the context of differences in gender, age, type and cause of injury or other influences that may affect their independence and their role as partners in their own care. Transitioning from one care type to another.

It is difficult to directly correlate the characteristics of the discharge scheme in SA with the many factors involved in measuring health status and the effectiveness of treatment. Ben-Morderchai, Herman, Kerzman, and Irony (2010, p. 67) stated that *"Evaluating the impact of a given discharge process is a complex matter"*. There is no doubt the process is complicated due to the number of players and processes. Barach's Discharge Planning Fishbone diagram (Figure 1.2) is a helpful visualization tool. A fishbone diagram or Ishikawa diagram is used for the potential causes and effects of a problem in order to find solutions. This version was presented by Dr Paul Barach in a presentation to Hospital Chief Executive officers in Melbourne in February 2013 on Reducing Avoidable Hospital Readmissions by Improving Transitions in Care.

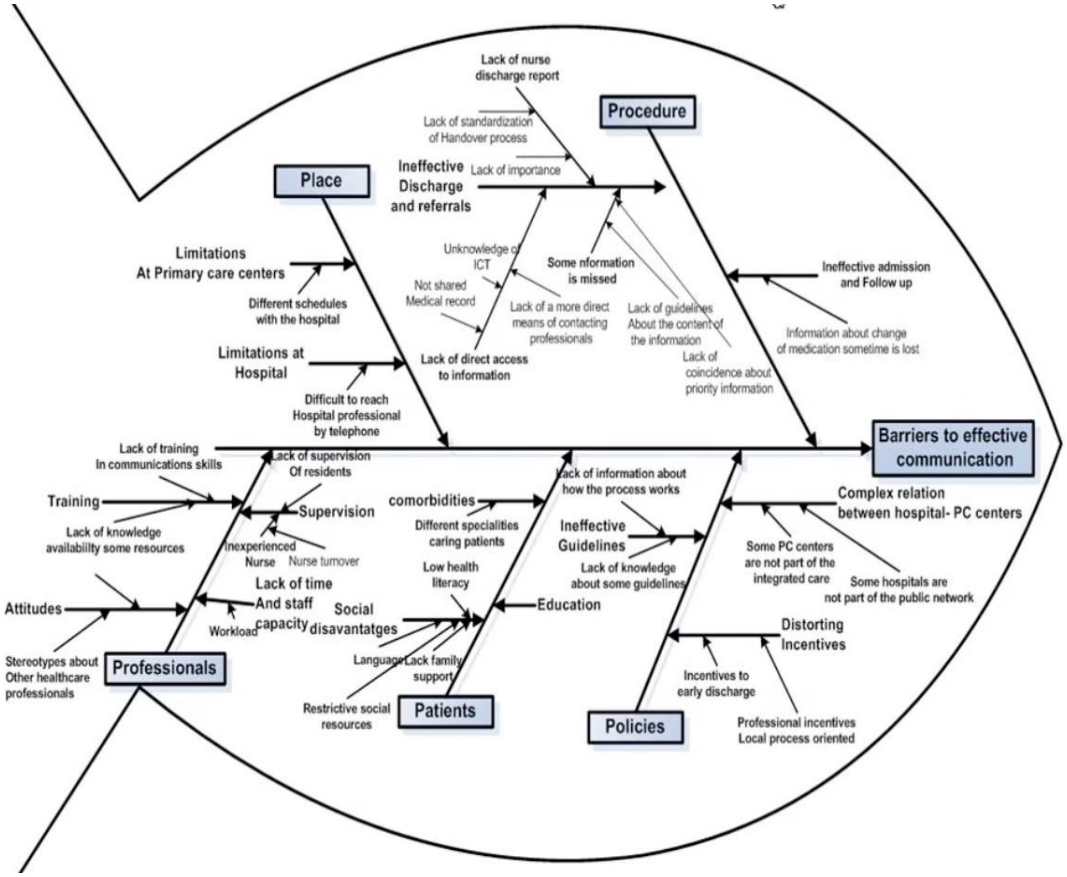


Figure 1.2 Barach's Discharge Planning Fishbone Diagram

Many patients present to EDs or after a short in-patient stay with uncomplicated limb injury experience treatments and the discharge process without complications. However, the most 'at risk' for communication errors and difficulties with discharge instructions are those who live alone, those whose first language is not Arabic or English (the language of the health services), those who are poor, are hard of hearing or elderly. Wong et al. (2002) pointed out that patients who were re-admitted to hospital usually had unmet needs and developed complications from existing problems, or they had inadequate rehabilitation. Patients with limb injury, including those with non-major injury, often cannot manage their health care needs independently, especially during the transitional period (from acute to rehabilitation) and are likely to have the burden of a plaster cast. Some, such as an expatriate in SA, do not have family members who can assist with their needs or speak on their behalf.

In contrast to some countries which have a robust health care support system in Saudi Arabia extended families and tribal associations support convalescence. Many researchers point to Saudis' reliance on outpatient hospital clinics and report that; this is due to inadequate post-hospital support for patients (Algahtani, Aseri, AlDiab, & Aleem, 2013; Alshowkan, Curtis, & White, 2013). Al-Jadid and Robert (2011) pointed out an imperative need in Saudi Arabia for rehabilitation services to support patients affected by trauma and disease. To meet these patients' needs during their transitional period, designing a discharge model for limb injury patients would bring the benefits of collaborative quality improvement across the healthcare system in SA. To understand the processes as shown in Figure 1.1, researchers need to deconstruct and explore sections of the process and then explore how they fit together in a system, to determine which models or systems or philosophies fit well with the Saudi community.

1.6 Limb Injuries

Leg and arm injuries occur throughout all age groups. To establish patterns in fracture incidence among youth in Helsinki, Finland, Mäyränpää, Mäkitie, and Kallio (2010) conducted a longitudinal study, 2005, 1983, 1978, and 1967 on youth fractures, finding that they were caused primarily through tripping or falling. Mäyränpää et al. found that after rising mid-century, overall fractures decreased significantly since 1983; although upper arm and forearm fractures increased by one-third. This section examines such limb injuries and the causes of leg and arm injuries from sports, vehicles, and falls.

1.6.1 Sport injuries in adolescents

There is considerable attention everywhere paid to the health benefits of sports. In the United Kingdom and other developed countries, Shanmugam and Maffulli (2008) noted the rapid

rise of physical activities including sports in community facilities to promote 'the immediate physical, psychometric and intellectual attainments' (Shanmugam & Maffulli, 2008, p. 33). The long-term benefits assist balanced development of individuals by their participating in sports, both individual and team. Due to the rising competitive element, athletes train more intensively for longer during the year and the outcome is sports-related injuries. Studying the long term effects of sports injuries in the United Kingdom, Maffulli et al. (2010, p. 21) called for 'meticulous documentation of injuries on injury report forms that include age-appropriate designations of the type of injury and accurate determination of exposure-based injury rates'.

Interestingly, Dlugosch, Hu, and Chan (2012) commented that despite the potential for sports injuries, and awareness of impact protectors to mitigate injury, athletes do not use protective clothing. Paradoxically, the shock-absorbing ability of impact protectors, especially for arms and legs, is currently difficult to wear and restricts movement and performance. Dlugosch et al. called for research into using clothing to incorporate impact protection.

There is little current information in Australia. The Victorian Government established a taskforce to investigate sports-related injuries (Sports Injury Prevention Taskforce Victoria, 2013). The report showed that in 2009, sport represented the highest number of hospital presentations for youth to 24 years. Despite its prevalence, Strouse and Rosendahl (2013) noted that the variety of sports, equipment use, playing surfaces and the intensity at which the sport is played are all factors that contribute to injuries. Whilst the data are obtained in a piecemeal manner from secondary sources, researchers vary in their approach to injuries and national and international comparisons are not viable.

1.6.2 Vehicle incidents

Occurrences of limb injuries through vehicle incidents differ through societies. In India, Dandona, Anil Kumar, Ameratunga, and Dandona (2011) studied records of non-fatal vehicle incidents in Hyderabad (N = 2809). They found that amongst the lowest socio-economic group, people walked, and males were more likely to be on the street than females. As the household income rose, there was a greater likelihood of bicycle use, manual or motorised. Dandona et al. found that, as pedestrians, there were no significant incident differences between the genders; however, on two-wheeled transport, males were three times more likely to be injured. The majority (84%) reported injuries to legs. Investigating pedestrian and vehicle incidents (N = 1030) in Germany, Fredriksson, Rosén, and Kullgren (2010) found that adults were injured in 'leg to front end' and 'head to windscreen incidents. For less severe injuries from the sample, leg injuries predominated, followed by arm and head. In Victoria, Australia, Boyce et al. (2012) explained that of 1030 severe or fatal motorcycle crashes, tibial fractures were the most common after head injuries.

In the Gulf countries there are a high number of road trauma incidents. Grivna et al. (2013) studied hospitalisation records in Al-Ain in the United Arab Emirates, finding that over the period 2003-2005, 193 youths presented at hospital, with 41 per cent aged 15-19 years. Of those who were admitted, 53 of the patients were in the vehicle, 23 per cent were pedestrians, 14 per cent were riding bicycles and 10 per cent were on motorcycles and other vehicles. There were 6.7 male victims for every female, and the main injury site was the head.

Similarly, Hefny, Eid, Grivna, and Abu-Zidan (2012) studied bicycle related incidents in Al-Ain, finding that none (N = 133) of the cyclists were wearing a helmet. Of those injured, 74 per cent sustained head injuries and 70 per cent injuries to legs and arms. Hefny et al. concluded that, as 17.7 per cent were Emiratis, the injuries were sustained by low income foreign youth using bicycles for transport, as two-thirds of foreigners were hit by car drivers.

Road trauma contributes extensively to death and injuries in the Kingdom (Al-Naami et al., 2010). There is a long history of extremely dangerous behaviour by predominantly young Saudi male drivers. Several authors over the past two decades have attempted to bring pressure to bear on the authorities to police the issue, to little avail. A selection of the researchers undertaken on the crisis condition on Saudi roads shows in Table 1.2. The trauma caused by irresponsible and dangerous youth driving powerful cars is described as vehicle incident; the term cannot be vehicle 'accidents' as the results are inevitable, they are foreseen. An accident is not foreseen, it is a random occurrence (Griffin, Watt, Wallis, Shields, & Kimble, 2013). Whils Saudi Arabia did not have the highest road toll in the world (Iran: 34.1 deaths per 100,000 people), in 2012 the Kingdom reached 28.1 people dead per 100,000 population, four times the rate of Australia. Of the countries which use cars, Sweden was the lowest at 3 people per 100,000. Factors contributing to vehicle incidents were speeding (65%), driver error (80%), ignoring traffic signals (50%) , and badly designed roads (20%) (Ageli & Zaidan, 2013; World Health Organisation, 2014).

Table 1.2 Saudi Road Trauma Findings: 1971-2011

Authors	Findings
Sanks, Ansari, & Ai-Kalai, 1994 National Guard Hospital, Jeddah	Ramadan is of significance in road trauma, due to more vehicles being on the road. In 12 months, Sanks et al. analysed 361 victims, finding 16% under 10 years (half pedestrians), and a further 47% under 31 years. There were four male casualties to every female. Seat belts

	were not evident between 11 and 30 years. Burst tyres due to intense heat were common (39%) in casualties
Ansari, Akhdar, Mandoorah, & Moutaery, (2000) Riyadh Armed Forces Hospital	Reported that 564,762 people were injured on Saudi roads; every hour at that time, five people were injured and one died; two-thirds through excessive speed and disobeying traffic signals. On average 80% of deaths in government hospitals were due to injuries from traffic incidents
Al-Harthi & Al-Harbi, (2001) Al-Nour Specialist Hospital, Makkah	Report on hospital presentations during Hajj injuries (N = 713; with 248 admitted over 15 days); 60% in road traffic accidents, 15% had injuries in Holy Haram. There were 131 limb fractures (53%) of the trauma admissions
Al-Ghamdi, (2003) King Saud University, Riyadh	Of 1774 reported incidents 1996–1998 at street corners, 651 involved injuries; findings were that running a red light and failing to yield were the primary causes contributing to injury
Crankson, (2006) King Fahad National Guard Hospital, Riyadh	Studied motor vehicle injuries from 1994-2003 of people under 12 years (N = 669). Male to female ratio of 2.4:1; 71% were pedestrians, 27% were vehicle passengers, the remainder were riding bicycles (1.5% or motorcycles (0.5%). The injuries were predominantly head and extremities
Gad et al., (2011) King Saud University, Riyadh	In a household survey of injuries among adolescents (N = 1650), results of injuries in the past 12 months were falls (40.4%), road injuries (15%), food toxicity (8.8%). Males were more likely to be injured (26%) than females (18%); and this was associated with playing in the street or living near playgrounds
Alshahri, Cripps, Lee, & Al-Jadid, (2012), Riyadh Military Hospital & Australia	Reported on spinal cord injury rates for 307 adolescents and adults admitted 2003-2008. Average age was 29.5 years, road trauma was the cause in 85% of the cases. Vehicle incidents in the Kingdom is the global highest; authorities should immediately address the problem and enforce road rules

1.6.3 Falls and other injuries

Individuals can fall from buildings, cliffs, vehicles, or as a result of aggression. In the United States, Shields, Burkett, and Smith (2011) studied balcony related falls requiring hospitalisation from 1990 to 2006 (N = 86,500). They found that 70 per cent were male, and

63 per cent were over the age of 18 years. In Turkey, Toraman and Yıldırım (2010) found that agility and dynamic balance were associated with risk of falls in nursing homes (average age 74 years). Exercise regimes should concentrate on maintaining agility and balance, and incorporate muscle strengthening for legs and arms. This was confirmed in Germany by Arampatzis, Peper, and Bierbaum (2011), who found that dynamic stability was improved in older adults (N = 38) through exercising the body mechanisms at work in dynamic stability control. They found that the individual's ability to react to a simulated forward fall improved neuromuscular coordination and thus agility.

There is extensive literature regarding falls in older and elderly people. Siracuse et al. (2012) in the United States confirmed the expectation of a longer hospital stay for elderly people after a fall. They investigated all fall admissions in Harvard Medical Centre in 2008 (N = 708; average age 75 years, male), finding 89 per cent were due to a simple fall, but that a range of diseases and conditions precipitated the fall and cardiac disease, major orthopaedic procedures and pneumonia frequently accompanied hospitalisation. In Sweden, Nilson, Moniruzzaman, and Andersson (2013) studied data on fall-related fractures in the elderly between 1998 and 2010 to detect trends. They found that, apart from males over the age of 80 years, leg fractures increased for the very elderly and decreased in seniors. They. concluded that in Sweden, more serious fractures were decreasing; however less serious fractures in legs and arms did not follow that trend.

1.7 Framework through a lens

In this thesis, a lens was considered as a useful perspective through which to view a key framework in the process of discharge planning. Lenses are like windows, frames or filters and suggest the aperture of a camera, where only the essential is in focus. The framework

underpinning this study is safe, quality, participatory modeling as initiated by the WHO in 2006 with global calls to improve handoff (ensuring safety) and is still underpinning practice today as demonstrated by Hunter and Birmingham (2013). According to the latter authors, the solution is a framework of mandated or law like policy style discharge planning which has been shown to impact positively on patient safety and patient outcome (ensuring quality). Both of these concepts will be strengthened in Saudi Arabia if the concept of fatalism is enmeshed into the consideration of future models (ensuring participation). The rapidly growing young population and the incidence of RTAs as a growing health hazard in Saudi Arabia indicate the need for such a framework. A view that encompasses both the person and his/her environment helps to reveal the context in which meaning emerges. It reflects the intimate, dynamic person, environment interactions and reveals each person's unique interactions with the world. Identification of whether fatalism is a constraint on potential beneficial models of care or a reaction merely as a comfort mechanism, as measured by the individual, may lead to a better understanding of many aspects of nursing care for Muslims as the research progresses under the described framework.

1.8 Statement of the Problem

As previously stated, SA holds the world record for trauma resulting from road traffic accidents and it has approximately 81% of acute hospital beds occupied by those that survived the accident, most of whom are 16-36 year old males (Al-Naami et al.,2010). Neither the general driving public nor those who recover from RTAs are not currently supported by safety campaigns and do not appear to be deterred by local laws to change their driving habits, and they may have further traumatic injury and hospitalizations. A snowball effect is occurring, where if the length of stay and unplanned re-admissions are not managed well with sound discharge planning models, particularly for the non-major categories, there is

a greater demand for acute hospital beds. This leads to a shortage of hospital beds for other categories of patients. The problem appears to be due to the non-existence of a well- prepared discharge model that fits the Saudi context, especially for the patients with non-major, shorter length of stay orthopaedic limb injury patients are more prone to turn over to ED more quickly, and would impact on efficiencies in a system with overburdened EDs and limited rehabilitation streams.

The approach to discharge planning is generally referred to as the medical model used by the multidisciplinary team. This model emphasizes the provision of medical services and meeting medical needs, and identifying the patient as the central focus (Ben-Morderchai et al., 2010; Durvasula et al., 2015; Watts & Gardner, 2005). It is based on evidence-based research and best practice which is typically applied to patients with orthopaedic limb injuries and views the patient within a family and system framework that considers the self-care ability, psychological distress and overall health, and reduces returns to ED.

It has been argued that countermeasures that are effective in developed countries may not be effective in developing countries (Jacobs & Sayer, 1983). Factors such as the characteristics of the culture, as well as the social and political systems should also be taken into account when considering to importing interventions from developed countries. A greater understanding of these factors can help people understand the bases of conventional approaches and can assist in developing approaches that are culturally appropriate (Young, Morris, Krishnan, & Regmi, 2005).

Therefore, one prerequisite for developing a discharge care model and interventions in developing countries is to understand the factors contributing to limb injury, and

consideration of the beliefs which influence behavior and responses to interventions. These beliefs include fatalism, or the belief that events are predetermined and inevitable, thus affecting the interpretation of crash events leading people to take more risks and disregard safety measures (Hazen & Ehiri, 2006). Such beliefs may also promote resistance to interventions designed to change such behavior. In turn, people may not be aware of the rationale for their unsafe behavior and may not have a 'scientific' understanding of the issues which are perceived as out of their control. Together, these issues are important to consider when developing and implementing models of discharge care for limb injury and interventions. For this reason, an understanding about the nature and role of fatalism in the broader context is an important fundamental step in the efforts to contribute to the management of limb injury in SA.

1.9 Research Questions

1. What opportunities exist to enhance current discharge models for patients with limb injuries in Saudi Arabia Hospitals?

2. Are there any correlations between any of the demographic variables, sources and type of discharge instructions, and unplanned return to ED?

3. When faced with injuries, to what extent do Muslims rely on fatalism and acceptance of God's will?

1.10 Hypothesis

It is hypothesized that (a) efficient systems and services management are not currently in place to support effective care for the majority of patients with limb injuries. Patients whose care is planned and delivered with systematic discharge instructions will achieve better clinical outcomes; including greater self-care ability, ambulation, lower psychological

distress, and reduced return to emergency departments. It also (b) hypothesised that there would be ~~a~~ strong correlations between age, gender and type of injury, and instructions would influence unplanned return to ED. It is further hypothesized that type of injury would influence the patient's self-care ability. In term of fatalism it is hypothesised that (c) Muslims are more likely to endorse religious fatalism, with the belief that human effort is irrelevant. These beliefs can create a sense of carelessness and people can take more risks while driving a vehicle as they have the perception that if an accident is going to happen it will happen regardless of whether they adopt safe driving or not.

1.11 Design

A review of the literature on discharge planning field and limb injury revealed that a plethora of previous research on this in the Middle East, and Saudi Arabia in particular. This is evident in Literature Review chapter. A critique of into the literature revealed that there is a lack of research with regard to discharge planning for limb injuries in SA from the patient's perspective, the multidisciplinary team, and attitudes toward injury. A review of this literature supported the use of mixed methods approach in closing the information gap or void occasioned by the lack an in-depth understanding of the current discharge planning for limb injury.

1.12 Research Aim

The aim of this study is to explore the adequacy and appropriateness of approaches to discharge planning for patients with non-major injury in Saudi Arabia (SA) hospitals; to identify factors that could lower the number of patients making unplanned returns to Emergency Department (ED); and then explore how they fit together in a system, to determine which models or systems or philosophies fit well with the Saudi context.

1.13 Significance of the Study

This study is significant because it is the first empirical study on discharge planning as applied to the SA health care system. It is expected to inform policy and practice across the continuum of care in areas such as bed management, patient flow, rehabilitation, costs of care, health services efficiencies, patient education and ED overcrowding.

1.14 Scope

The approach to discharge planning belongs to the multi-disciplinary team; however, interviews and surveys of a full range of health professionals is beyond the scope of the study.

1.15 Researcher's Position

The researcher was employed as an orthopaedic Nurse and Cast Technician at King Abdul-Aziz Medical City KAMC (Emergency Department and Outpatient Clinic) for five years, and as a Registered Nurse (RN) in Australian Hospitals. It was during that time that he developed a strong interest in designing models of care for patients with orthopaedic injuries. During this time, he attended to enormous patients who were injured in RTAs and other accidents. He witnessed death, serious injury, suffering and grief, experienced by the injured to their families. These experiences have given the researcher insights into the different perceptions and perspectives on discharge planning following limb injury in the Kingdom.

1.16 Orthopaedic Care

The study has been designed to explore the discharge care for a sub-group of non-major injuries with defined categories of orthopaedic limb injury. This patient category is of particular interest to the researcher because it is a group that is under-researched, particularly the young males, aged 16-36 years, who require timely efficient and socially acceptable

discharge models of care (Bendak, 2005). The researcher required working definitions of orthopaedic injury, major and non-major injury, planned and unplanned returning to ED. Working definitions of terms used in this study are included in the Glossary of Terms.

1.17 Thesis Structure

This thesis is composed of seven chapters: introduction, literature review, research design, quantitative results, qualitative results, and discussions and conclusion.

Chapter One of this thesis introduces the study, provides the background to the research, the context, the people and the health services, followed by an overview of SA and cultural and fatalistic beliefs related to injury and discharge planning. The significance of the study, research questions and aim of the research are also provided.

Chapter Two presents a critique of the existing literature related to discharge planning, with special reference to orthopaedic patients with limb injuries, international care models, which mandate early identification of patients in need of discharge planning, and assessment of available and appropriate research to meet patient post discharge needs and discharge care models in SA. In addition, the cultural influences on the lives of the Saudis and how prevention can be a resource against fatalistic and passive tendencies will also be discussed in this chapter.

Chapter Three The research design is described, including the rationale behind adopting a mixed methodology and using an explanatory sequential research design. The chapter also describes the use of quantitative methods and the use of a survey in the first phase as primary research method and qualitative semi-structured interviews in the second phase as a

complementary research method. This is followed by an outline of the ethical considerations and methods of data collection and analysis.

Chapter Four presents the findings of the quantitative phase of the study in six parts, highlighting the important information that arose from the analysis as follows:

- Part one describes the socio-demographic data
- Part two correlates outcome variables
- Part three reports the type and sources of instructions
- Part four examines the demographic differences who did and did not return to ED
- Part five examines the injury background who did and did not return to ED
- Part six examines injured body part differences in the outcome variables

Chapter Five presents the qualitative findings with the content analysis for open ended questions distributed to patients with non-major injury, and the semi-instructed interviews with nurses experiences of discharge planning in the form of data categories and data.

Chapter Six answers research questions and presents the discussion of the findings reported in Chapters four and five. The result are integrated and synthesized with the current literature on discharge planning and potential influences on the future management of nursing resources and nurse policy in this area of research. Furthermore, it presents the recommendations for practice and policy for discharge planning (models) for patients with non-major orthopaedic limb injuries.

Chapter Seven presents the limitations of the study, and provides suggestions for future research which builds on this work.

1.18 Conclusion

This is the first empirical study of discharge planning models of care for limb injury in KSA. It is located in the framework of safe, quality, participatory modeling as initiated by the WHO in 2006, together with the concept of fatalism, whether considered as a constraint or a reaction as a comfort mechanism. The study was designed to shed light on the approaches to discharge planning for patients following limb injury. The study also explores the systems, the evidence base and the efficiencies of health services from the perspective of nurses, and the support for recovery.

The findings are expected to answer the research questions, to identify the current discharge planning models for non-major limb injury, and examine the participants' insights to enable the enhancement of necessarily urgent innovative care models. International readers may also be informed by the findings which provide an Islamic focus in the delivery of quality health care.

CHAPTER TWO: LITERATURE REVIEW

> *Discharge planning is the development of an individualised discharge plan for a patient prior to them leaving hospital for home. The discharge plan may be a stand-alone intervention or may be embedded with another intervention . . . (and) may also extend across healthcare settings and include post-discharge support* (Shepperd et al., 2013, p. 5).

2.1 Introduction

Discharging patients from hospital involves a complex process of patient assessment, developing a treatment plan, education for patients and caregivers, monitoring and evaluating the patient's progress. The process requires communication and collaboration with other healthcare providers within and external to the hospital organisation and perhaps the community as well (Ben-Morderchai et al., 2010; Griffey et al., 2015; Shepperd et al., 2013; Yam et al., 2013). There is a substantial volume of research-based literature on discharge planning, and the findings are of considerable interest to the relevant researchers and policymakers.

This chapter comprises a summary of the peer reviewed literature on discharge planning processes in general, with special reference to patients who require orthopaedic treatment for muscular-skeletal injury. The chapter commences with the literature search strategy. This is followed by a review of the recent studies on discharge planning, on designing discharge plans to meet the needs of the patients, and on the international practices and exponents of quality discharge plans. Characteristics of the Saudi hospital's administrative procedures are then explored, including issues with communications and unplanned return to the hospital. The review then discusses the cultural influences, including a reference to the fatalistic attitude to life which is a common feature of the Saudi society, and its implications for healthcare interventions.

2.2 Literature Search Strategy

The aim of the literature review was to explore discharge planning processes following treatment for limb injury, in particular, that from Saudi Arabia or from other developing and developed nations in the region. Keywords were orthopaedic and discharg*; discharg* and Saudi; effective and/or comprehensive discharge; readmission and/or injury; orthopaedic and intervention: healthcare system collaboration; fatalism and injury. The key words were used in combination using 'OR' and 'AND' to capture all relevant papers. Databases selected were CINAHL, ProQuest, Scopus, OvidSP, PubMed, Saudi Arabia government and Saudi Ministry of Health database. The inclusion criteria were:

- Arabic and English languages
- PhD, Masters theses and peer reviewed articles
- The year 1990 until the year 2014

However, during the literature search references before the year 1990 were included if they explained the antecedents of the theme, although recent changes in the Saudi healthcare system tended towards contemporary information and references.

Articles that focused on the medical perspective, multiple injury, major injuries, pediatric, and knee or hip replacement were excluded; the review method resulted in a total of 3,221 articles that met the inclusion criteria. Duplicate articles were discarded, resulting in 2,624 which were screened for relevance based on title and abstract. This resulted in 322 articles. 176 articles were excluded due to their not being relevant to the research contents. These articles were assessed for quality. The final research output resulted in 146 detailed documents/articles, the result of the search strategies can be found in Figure 2.1.

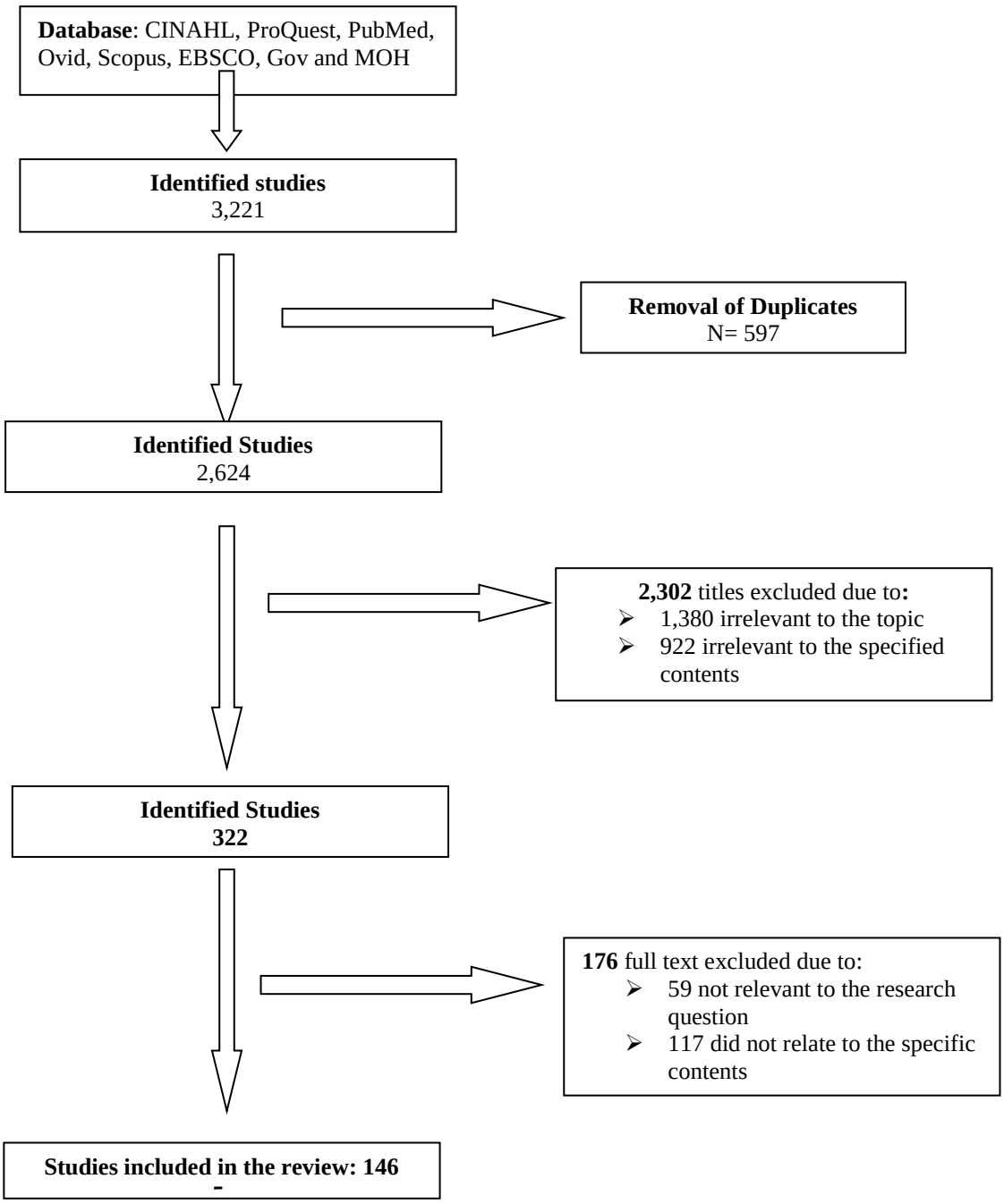


Figure 2.1 Results of Search Strategy

2.3 Discharge Planning as Multi-Professional Process

The notion of minimising the duration of hospital stay by the early transfer of patients who do not require acute care to an external facility, appears to have been formalised in the mid to late 20th century, originally in the USA (Hesselink et al., 2012). It was implemented mainly as a cost-cutting measure under the Medicare program of the USA. Its objectives were to reduce the non-essential occupancy of hospital beds, so that the hospital resources could be utilised more efficiently. However, the practice did require an assurance that it was not done at the expense of patient care, and the hospitals were obliged to provide continuous support for patients out of the hospital. It does appear that the rest of the world, including Europe and United Kingdom, did not adapt the concept in those early days (Naylor et al., 1999) which was attributed to the relatively robust community involvement in patient home-care, during that era, with hospital-based care being limited only to a few serious disease conditions.

By about the end of the millennium, care transfer out of hospital, whenever allowed to do so, became the standard practice in many countries, and the process associated with it came to be known as discharge planning (Parkes & Shepperd, 2000). The term 'discharge' is broadly defined as "the processes, tools and techniques by which an episode of treatment and/or care to a patient is formally concluded by a health professional or a health care provider" (Cummings et al., 2013). Therefore, discharge planning is the preparatory process which is now recognised internationally as a means to promote post-discharge patient safety, by ensuring that the environment and the available support are adequate to promote recovery and prevent an unplanned hospital re-admission (The Australian Council for Healthcare Standards, 2010).The discharge destination may be the patient's home or another health care institution or an aged care facility, where the patient's ongoing physical and health care needs are to be managed.

Ideally, the discharge planning process commences when the patient is admitted to the hospital, followed by a series of events during the patient's stay in hospital, involving the patient and family throughout the patient's stay, and concludes at the point of discharge. Thus, discharge planning is a multidisciplinary process in that it involves the cooperation and coordination of several people that include professionals of different disciplines, the patient and the family members (Durvasula et al., 2015; Watts & Gardner, 2005). The professionals include members of the allied health professions such as physiotherapists, social workers and occupational therapists who would work with medical officers and nurses to develop a patient's discharge plan. The process requires sufficient time to complete all of the required elements, and ideally, would be coordinated by a single health professional. The best outcomes are achieved when the family, or other carers who may take over the care, are also ready to continue the care at home when the patient is medically ready for discharge (Katikireddi & Cloud, 2009). Finally, the discharge of the patient should accompany the handing over of the care needs to the next care provider, who may be the patient, family member, or the staff in the community or the institution accepting the patient (Snow et al., 2009).

2.4 Effectiveness of Discharge Planning

As referred to earlier, the aims of a properly executed discharge plan are to reduce the length of hospital stay, ensure positive post-discharge health outcomes for the patient, reducing unplanned re-admissions and reduction of healthcare costs. Therefore, it is pertinent to ask the question; "Does discharge planning always achieve these objectives, and are there benefits to gain from it?" There are several reports of studies that addressed this question, and attempts made to assess the effectiveness of discharge planning. Several different criteria including length of hospital stay, unplanned re-admissions, patient satisfaction, overall health outcomes have been used in these assessments (Lin, Wang, Chang, & Yang, 2006).

Systematic reviews of studies on discharge planning, done in the last decade, have generally been inconclusive about its benefits (Shepperd et al., 2013). Nevertheless, 11 of the 21 studies included in the Shepperd et al. (2013) review have shown a reduction in length of stay and readmission rates and an increase in patient satisfaction.

Considering the individual criteria, the effect of discharge planning on the length of hospital stay showed a small reduction with older patients, but no statistically significant difference in the case of patients recovering after surgery (Chern et al., 2014; Preen et al., 2005). Discharge planning significantly reduced the unscheduled re-admissions (Balaban, Weissman, Samuel, & Woolhandler, 2008; Jack et al., 2009; Legrain et al., 2011). One study that examined the effects on mortality rates concluded that discharge planning had no significant effect (Legrain et al., 2011). Similarly, no effect was seen on patient health outcomes whether discharge planning was followed or not (Preen et al., 2005). However, Lin et al (2009) in a study of patients recovering from limb injury, found a significant advantage of discharge planning on the patient's social functioning, pain management and genera; health. Factors that increase the effectiveness of discharge planning are presented in Table 2.1.

Table 2.1 Success factors in discharge planning

Success factors	Author/s
Identifying patients' needs after discharge	Shepperd et al., 2013
Early involvement with caregivers	Bauer et al. 2009
Adequate information during discharge process	Bauer et al. 2009
Effective interdisciplinary communication by health professionals	Bauer et al. 2009
Access to a range of ongoing support	Shepperd et al. 2013

According to Shepperd et al. (2013), discharge planning has emerged less as a stand-alone intervention and more as part of an integrated package of care. This presents further challenges in interpreting the evidence, as it becomes more difficult to understand the relative importance of each aspect of health care (Shepperd et al. 2013, p. 14). Reducing re-admission rates soon after discharge is a major concern in discharge planning, and quite fittingly this criterion has been the focus of many studies. Re-admission rate refers to the percentage of patients who are re-hospitalized after discharge to the same or similar healthcare facility within a short time period (typically within 30 days) with the same condition. The rate of re-admission is used as an indicator of the quality of care provided by a facility. The risk of re-admission has been found to be dependent on many variables such as medical diagnosis, socio-demographics, economic educational, comorbidities, and insurance status (Patel et al., 2010; Ross et al., 2010). There is a great deal of literature concerning re-admissions associated with specific medical conditions, such as cardio vascular diseases and heart failure (Ross et al., 2010; Thakar, Parikh, & Liu, 2012), while there is less literature available concerning the other less prevalent medical conditions.

Lin et al. (2006) examined the impact of length of initial hospital stay (LOS) on re-admission rate using multivariate logistic regression on the data on schizophrenia patients from a National Health Insurance Research Database for 2001 to 2003. They concluded that a short LOS is related to increased readmission rates within 30-days of discharge. Heggestad (2008) also found that shorter LOS increased the patient's risk of readmission using regression analysis of the data from Norwegians hospitals for patients over the age of 67 years.

Jencks, Williams, and Coleman (2009) analyzed the US Medicare data for 2003 and 2004 and reported that 19.6% of Medicare patients are readmitted within 30 days of discharge, and 34% were re-admitted within 90 days of discharge. Additionally, they found that 90% of re-admissions were unplanned, costing Medicare 17.4 billion which would suggest that minimising re-admissions would directly contribute to reducing hospital costs. Hernandez et al. (2010) through an observational analysis, showed that follow-ups during the first seven days post-discharge reduced the likelihood of re-admission for patients being treated for heart failure.

In a study involving hospitals of Australia and England, Shepperd et al. (2013) assessed the data on 8000 patients exhibiting a range of medical and surgical conditions, including one trial on outpatient services after falls (n = 110). It was evident that both re-admissions and hospital length of stay were reduced when a discharge plan accompanied the patient when leaving the hospital.

The focus of the work described in this thesis is on discharge planning as applied to orthopaedic patients. Discharge planning for patients with limb injuries gets even more complex as patients have additional needs such as mobility aids and physiotherapy services. In that regard, in the US, Hoyer et al. (2013) noticed a return rate of 23% of 1515 orthopaedic patients, between 2009 and 2013, to acute care, within 30 days of discharge. They ascribed it simply to the patients' inability to carry out the daily tasks on their own. Lack of proper understanding of the special needs of this category of patients may contribute to increased re-admission. According to Hoyer et al. (2013), a patient's level of mobility and thus independence should be assessed and support services put in place to reduce the risk of re-admission.

Using the 30 days re-admission rate as a quality indicator, Mccormack et al. (2013) analysed a United States orthopaedic hospital's patient records from 2007 to 2009. The authors classified the re-admission as planned (30%) or unplanned (70%) with the latter being further categorised as due to infection (60% of unplanned) or nonsurgical complications (18%). Their conclusion was that for better patient outcomes greater attention is needed on infection control and coordination between orthopaedic surgeons and after hospital services in the community. Improved quality performance in Spanish hospitals was advocated by Nunez, Hexdall, and Aguirre (2006), who investigated unscheduled returns (n=500) to hospitals within 72 hours after discharge. Nunez et al. (2006) cited diagnosis and prognosis errors, service delivery and quality control as matters to address by the Spanish health authorities.

Schairer, Sing, Vail, and Bozic (2014) in the US studied 1415 patients with surgery and found that 7% required re-admission within 90 days. Half of the re-admissions were due to surgical site infection, postoperative heamatoma, or dislocation. Quality of care should thus distinguish between primary and revision (second operation, n=344) procedures. Similarly, Clement et al. (2013) analysed data for 1583 patients undergoing primary arthoplasty surgery, finding a 90 day re-admission rate of 6.5 per cent, with higher re-admission rates positively correlated with shorter length of hospital stay, advanced age of patients, and higher body mass index.

In regard to the studies that examined the effectiveness of discharge planning, it is likely that the planning in each case was assumed to be well designed and implemented. However, it is conceivable that wherever the effectiveness was deemed to be poor, it may have been due to deficiencies in the planning process, in the first place. Furthermore, there is the issue of patients' compliance with the instructions on the plan or the recommended medication

regime. The latter, however, is a difficult entity to determine objectively. There are many studies that have highlighted the deficiencies in several other elements of discharge planning, some of which are discussed below.

2.5 Commonly Encountered Deficiencies

Discharge planning is frequently designed by nurses or care coordinators. However, it is common practice that, in the hospital environment, there is frequent change of care teams. Therefore, unless extreme care is taken, there is the potential for omissions in hand over of information during shift changes. Keenan et al. (2013) studied the medical–surgical nursing units (n = 8) in the United States, directly observing staff communication patterns for 8 or 12 hour shifts for 200 hours, and identified the following issues in the nurse hand-over system: Variation in nurse documentation and communication; The absence of a centralized care overview in the patient's electronic health record, for example easily accessible by the entire care team; and almost total absence of interdisciplinary communication (Keenan et al. 2013, p. 245). From a review of the literature, the following areas of discharge planning performance stand out as particularly problematic and reasons for poor outcomes for patients.

2.5.1 Completion of essential elements

Some of the required elements such as patient assessment; patient and family involvement; sufficient time to prepare for discharge; lack of referrals to services and communication between team members and between the health care team and the patient and family have frequently found to be missing entirely or only partially completed (Bowles, Naylor, & Foust, 2003; Knier et al., 2015; McMurray et al., 2007). Many elements were often found to be completed in a haphazard manner, giving the impression that the discharge planning was completed hastily (Armitage & Kavanagh, 1996; Bull & Roberts, 2001). Without properly

completed discharge planning, patients were at risk of experiencing undesirable events at home, unplanned visits to the emergency department or specialist, or readmission to hospital.

Instances have been evident where patients did not have an assessment completed on admission or at any time during their hospital stay. An exploration of the adequacy of discharge needs for surgical patients in three of the hospitals in Australia, found that all patients (n=13) that were reviewed did not have their discharge needs addressed either on admission or any time during their hospital stay (McMurray et al., 2007). While the reasons for the omission were not clear, the authors theorised that, perhaps as these patients had established clinical pathways for their procedures, the staff may have assumed that no further assessments were required (McMurray et al., 2007). Admission assessment is a standard and expected process for all patients admitted to any hospital in Australia (The Australian Council for Healthcare Standards, 2010). Yet, the above-discussed study suggests that there is no consistent adherence to the standards.

The study by Bowles at al. (2012) sheds some light on the reasons for such lapses. After a review of the discharge of 174 patients, it was found that patients with a shorter length of stay were less likely to receive a referral for services and also had a significantly higher risk of readmission. The authors' reasoning was that the short length of patient stay hampered health care staff's ability to complete all the necessary elements of discharge due to time constraints.

Collecting and assessing data preparatory to the patient leaving the hospital was of concern to Burnett, Deelchand, Franklin, Moorthy, and Vincent (2011). They studied missing or unrecorded data in Britain, United States and Australia, finding that missing or incomplete data acted adversely on health outcomes for outpatients (some 7% of United States'

outpatient cases, 3% of cases in Britain and 2% in Australia). Burnett et al. (2011) found that full electronic records significantly reduced the incidence of missing data which had the potential to significantly delay or otherwise adversely affect patient's welfare. This is relevant to the Saudi experience, where there is little continuity among healthcare providers, given the high turnover rates.

2.5.2 Patient participation

Getting patients involved in their own discharge planning is another problem area. It is a frequent complaint that the supply of information by the health care staff was often absent, or when it occurred, the instructions from different staff members were contradictory. This led to patients' anxiety about their discharge, being unsure about what they needed to do at home and worrying about a recurrence (Cannaby, Parker, Cheater, & Baker, 2003; McMurray et al., 2007). Consequently, some patients in vulnerable states had to organise their own support after discharge, which increased their anxiety and risk of readmission to hospital (Cannaby et al., 2003; McMurray et al., 2007). Patients and families reported that they were unsure of the discharge date and notice of discharge was inadequate (McMurray et al., 2007). Some patients and family members received less than 24 hours to prepare for discharge home (McMurray et al., 2007). Consequently, patients went home unprepared because they did not have enough time to discuss their needs. Some patients then required unscheduled medical interventions by the general practitioner (GP) or specialist and readmission to hospital (Bowles et al., 2003; Bull & Roberts, 2001; Foust, 2007; McMurray et al., 2007).

Timing of discharge is important and should be given due consideration in the planning, together with adequacy of notice, so that provision of other services can be organised (Shepperd et al., 2013, p. 2). A delay in a patient's discharge also creates problems for the patient and family because an extended stay in hospital can contribute to the patient's

functional decline. This may affect the recovery process or discharge plans, particularly for older patients, and may frustrate family members who are likely to have their other commitments, such as employment (Cannaby et al., 2003; McMurray et al., 2007).

Patient satisfaction surveys completed in the United Kingdom and in Australia found the extent of patient involvement in discharge planning to be highly variable (Garratt, 2009; New South Wales Health, 2009). The results of the 2008 annual patient satisfaction survey of all acute care trusts in the United Kingdom found that only just over half (54%) of the patients were definitely involved, and 30% felt that they were somewhat involved, indicating nearly half of the patients' required greater involvement. Nearly two thirds (61%) of patients received printed information about their care at home. However, less than half (40%) were fully aware of any danger signals to watch for at home and one fifth (21%) were somewhat aware of the danger signals. Only 44% of the patient's family or carers received information from nurses or medical officers on how to manage the patient's care after discharge. These results reveal that there are still significant proportions of patients and family members who are not receiving information about the patient's care at home and are not completely involved in their discharge planning (Garrat, 2009). The report, however, did not indicate the type of information that was expected from the nurses.

2.5.3 Communication

In view of the fact that discharge planning involves a multitude of people, the value of communication cannot be over-emphasized. Communication, both verbal and written, and multidisciplinary team work is the key to effective discharge planning and the appropriate sequencing of events. However, lack of team work and poor communication between nurses and other health professionals has been found to be a common issue (Cannaby et al., 2003;

Griffey et al., 2015; Watts & Gardner, 2005). A study at King Faisal Specialist Hospital and Research Centre (KFSHRC) in Riyadh Saudi Arabia by Brown et al. (2009), to investigate why a patient with lymphoma failed to attend their appointment The study found 34.1 per cent did not attend their appointment due to staff communication problems, and 17.6 per cent due to errors in patients understanding staff. According to Brown et al. (2009) patients failing to follow up their appointment in KFSHRC could be excluded from the treatment or have treatment adjourned.

Another study of patient satisfaction by Albedaiwi and Alaloola (2008) at King Khalid University Hospital in Riyadh SA found that the lowest scores were communications between patient and health providers, and the study pointed out that there were significant dissatisfaction with staff not introducing themselves to the patient and not explaining the procedure. However, there was significant satisfaction with the staff being respectful. Also, another study by Al-doghaither and Saeed (2000) of patient satisfaction conducted in Saudi Arabia primary health services, found out that communication skills were the most important patient satisfaction determining factor. Moreover, a study of cancer patients in eight Riyadh hospitals showed that the lowest level of satisfaction on a five point scale was attentive listening to a patient's complaints, which scored only 2.22 points (Albedaiwi & Alaloola, 2008).

In Saudi Arabia, language and social norms contribute to issues caused by a large professional expatriate workforce. Almutairi, McCarthy, and Gardner (2014) studied training of expatriate healthcare workers using the Campinha-Bacote (2007) cultural training model. However, the researchers found this model inadequate in explaining expatriates' experiences with Saudi patients, and that non-Saudi nurses were confronted with varying language

fluency and social norms among their ranks, as well as Saudi expectations. Almutairi (2012) further argues that the multicultural healthcare model was inherently risky, due in part to communication issues among staff and the inadequacy of interpreters not appropriately skilled in communicating the nuances of communications between patients and the various interests of staff members. Lack of communication was cited in the fishbone diagram (Figure 2.2) as contributing to lower patient outcomes.

Atwal (2002) determined in her study exploring acute care nurses' (n=15) perceptions of discharge planning, that communication in discharge planning was not adequate. The author interviewed nurses using a case study approach and observed multi-disciplinary meetings (n=28) involving different specialities, medical ward rounds (n=4) and nurses' handover. According to the participating nurses, communication with medical officers occurred only when specific information was required, such as a discharge date or a referral. The nurses were not involved in multidisciplinary team meetings because the timing of the meetings clashed with the nurses' routines (Atwal & Caldwell, 2006). On the other hand, the other team members' observation was that the nurses, when present at medical ward rounds, were passive and did not actively ask questions about the patient's discharge or provide information about the patient's progress (Atwal & Caldwell, 2006). Furthermore, at nurses' handover, information about patients' discharge needs was either lost or not considered important enough to discuss (Atwal, 2002).

Similarly, in the study by Watts and Gardner (2005), nurses reported that communication with the multidisciplinary team was ad hoc because nurses were not involved in team meetings where discharge plans are discussed and each ward had different systems for communicating patients' discharge issues. In the limited studies investigating nurses'

documentation of discharge planning, it was found that documentation was either deficient or absent. Lalani and Galzar (2001) found that less than half (40%) of the patients (n=15) had any discharge planning documentation in their medical record. Foust (2007) reported that, although nurses completed patient assessments and ongoing discharge planning throughout the patients' stay, very little information was documented by nurses in the medical record. Community health staff also claimed that the handover documentation from hospital nursing staff was poor and often not adequate at times to manage patients' ongoing care (Bull & Roberts, 2001; McKenna, Keeney, Glenn, & Gordon, 2000). Patients' continuity of care, both in hospital and on handover to the community service providers, is affected by poor verbal and written communication and results in patients being discharged without appropriate support at home. Communication with the patient's family has been identified as another deficient area, and it is seen that families are considered to be obstructive to the discharge process (Bowles et al., 2003).

Evidently, better health outcomes for the patients can be achieved by the use of modern communication technology. In the 2012 systematic review of Care Transfers focused on hospital-to-home transitions, those that were based on computer-generated communication between providers using electronic health records yielded better results (Hesselink et al., 2012). One of the effective Care Transfers used tele-monitoring to reduce the combined rate of readmissions and ED visits in the year after discharge. Tele-monitoring involves patients' regular use of devices like scales or blood pressure cuffs that send the results electronically to health care providers, allowing for quick intervention if the results raise red flags. However, tele-monitoring and phone-based interventions generally did not reduce re-admissions for high-risk elderly patients, particularly when implemented alone. This research suggests that enhancing electronic records and information exchanges can facilitate safe transitions, but the

impact of tele-monitoring is less clear.

One aspect of healthcare after hospitalisation for clients with limb injury is the hospital's ability to monitor treatment and follow up procedures such as looking after casts and following instructions. This is increasingly available through mobile communications, more so than landline or letter. For example, Price et al. (2014) recently piloted text messages to 29 patients who experienced a traumatic injury for post-traumatic stress syndrome symptoms after they left hospital. The participants received automated daily text messages for 15 days, and were then followed up at one month and three months intervals. Price et al. found 24 of the patients responded at least once, whilst the average response rate per patient was 63.1 per cent; there was a high satisfaction rate with this strategy. In Ireland, Corrigan et al. (2011) also used text messaging for post-operative review using 55 post-operative participants over four months. Patients were first sent a text at two weeks after discharge, and those who considered they did not need to attend the hospital for routine review had their appointments cancelled. Those who did not respond were scheduled for the next clinic. The results were that, using text message surveillance, 74.5 per cent of patients were discharged from follow-up, and participants were satisfied with the text as their preferred form of communication. These led to a 13.6 per cent decrease in outpatient visits or early return to the hospital over a 4-month period.

Melton, Foreman, Scott, McGinnis, and Cousins (2012) used telephone communications in their assessment of high-risk re-admissions. The intervention group of participants (n = 1994) received telephone calls within 24 hours of discharge, with those of highest risk contacted first. The control group (n = 1994) were contacted randomly 48 hours after discharge. Melton et al. found that only modest rates of 7.4 per cent of the intervention group and 9.2 per cent of

the control group were re-admitted within 60 days. However, despite the advantages and the success with the use of modern avenues of communication, it is important to bear in mind that the more conventional communication is better and should be the preferred method for the older frail discharged patients.

Arora et al. (2011) studied the need for communication and coordination between the hospital and the primary care physician to ensure appropriate care. Follow-up by telephone of 27 such patients after discharge resulted in 42 per cent of patients reporting issues. In order, these were difficulties with follow-up appointments or tests, return to the ED, medication, or inadequate discharge instructions. A third of the participants' primary care physicians were unaware that their patients were hospitalised, and the study showed that patients were twice as likely to report problems if their physicians did not know of the hospitalisation.

The importance of better communication between the hospital and the primary care physician was supported by Lindquist et al. (2013) who found that patients whose primary care physician contacted them within 24 hours of discharge were better able to avoid medication issues. There is little doubt that an integrated approach to communications between the patient, the hospital and the primary healthcare provider is necessary to reduce readmissions, and importantly, the patient's quality of life. Communications, by voice or data, are influential in these objectives for the Kingdom.

2.6 Complexity of Discharge Planning

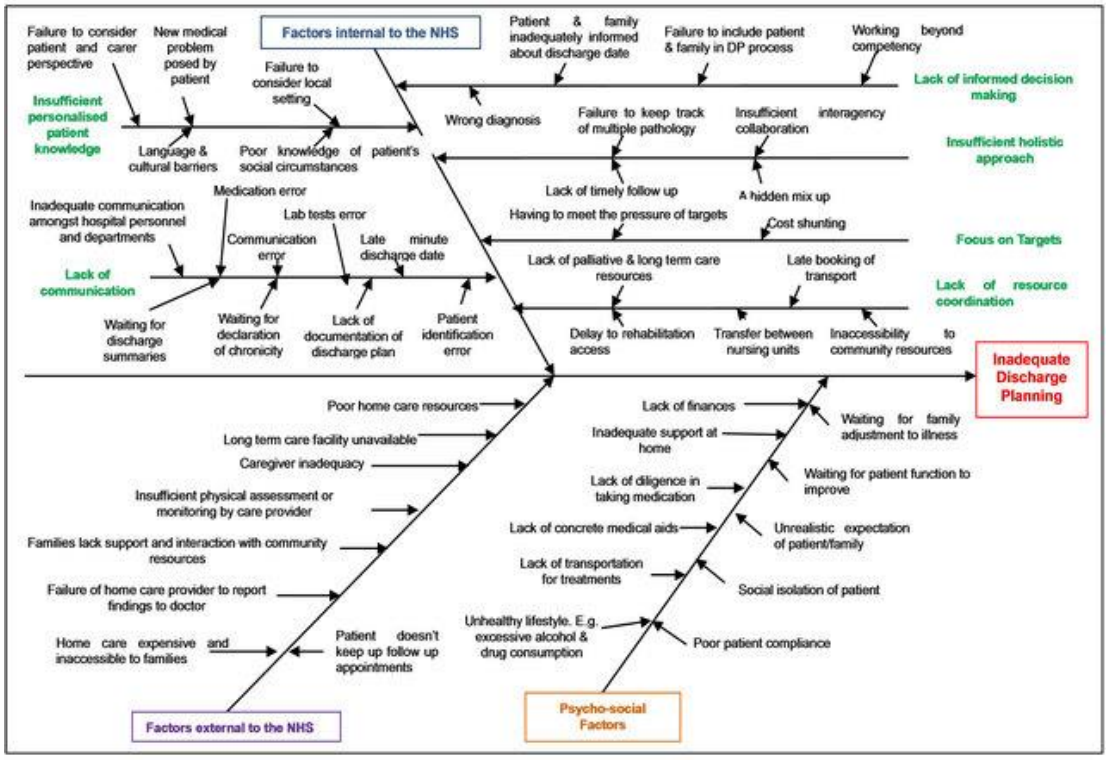
The deficiencies referred to in the previous section must be viewed in light of the challenges faced by the contemporary health care services, due to the increasing complexity of the modern discharge planning (Ben-Morderchai et al., 2010; Bradley et al., 2014). Several factors contribute to such complexity, the principal one being the present day tendency to

make the hospital stay of patients as short as possible (Ben-Morderchai et al., 2010). In almost all countries there is currently a shortage in the supply of sufficient hospital beds in public hospitals to meet the increasing demand for acute care. Furthermore, hospitals are forced to adopt cost-cutting measures due to their own financial constraints. The result is that the hospitals encourage having shorter lengths of stay for patients, requiring their ongoing health care to be managed in the community (Carroll & Dowling, 2007; Katikireddi & Cloud, 2009; Lim, Chong, Caplan, & Gray, 2009; New South Wales Health, 2009). Indeed, improved technology and better drug therapies do help in this, by reducing the time patients need to spend in hospital. For example, many new medical or surgical procedures are not as invasive or as debilitating as the old techniques, and hence, recovery is faster, and patients may go home to recover (Baker, Einstadter, Husak, & Cebul, 2004; Halm et al., 2002). However, patients with ongoing health care needs, if discharged without adequate support, are at risk of complications at home, often resulting in a re-admission to hospital (Bowles et al., 2003; Halm et al., 2002; Halm et al., 2003; McMurray et al., 2007).

When discharged, patients with limb injury may be unable to complete daily living activities independently and support is necessary for post discharge care. Information on sources of care, appropriate wound management and physiotherapy differ between patients, given the variability in health knowledge (Ben-Morderchai et al., 2010; McMurray et al., 2007). Research indicates that discharge without adverse events requires systematic, evidence-based discharge practice (Altallal, 2013; Bradley et al., 2014)

As noted, there is little research on effective patient discharge planning in Saudi Arabia, and Ben-Morderchai et al. (2010, p. 67) stated that ‘Evaluating the impact of a given discharge process is a complex matter’. Kamalanathan, Eardley, Chibelushi, and Collins (2013) show

an Ishiwaka fishbone diagram illustrating opportunities for dysfunctional outcomes for patients in a hospital discharge plan relative to the British health system (Figure 2.2).



Source: Kamalanathan, Eardley, Chibelushi & Collins, 2013, p.1.

Figure 2.2 Issues Arising in Patient Discharge Planning

The diagram at Figure 2.2 illustrates areas where issues can occur during the discharge process and they are organised as policies and practices of the national health system, community and home support, and psycho-social factors. The first issue inherent in the national health system, or in this case the Saudi private and public system is patient knowledge. Khalifa (2013) studied Saudi patient information systems in both private and public tertiary hospitals, finding a range of issues that prevented widespread dissemination of patient information: hospital policy and legal restrictions, technical issues and funding regarding newer information systems, and professional and personal preferences of healthcare providers.

In general, long-term hospitalization carries a risk of acute functional decline (Williams & Botti, 2012). Some studies have described a so-called "hospitalization-associated disability" (Covinsky, Pierluissi, & Johnston, 2011), while others report that illness or injuries leading to hospitalization often lead to loss of functional capacity (Gill, Allore, Holford, & Guo, 2004). This is particularly applicable to elderly patients who are likely to have several concurrent ailments, including cognitive impairment, which places them at higher risk for functional decline and increased vulnerability to adverse health outcomes (Popejoy, Moylan, & Galambos, 2009).

Persons whose conditions necessitate complex continuous management frequently require care from different health professionals in multiple settings. Coleman (2003) cites the example of a frail older person with a fracture to illustrate the complexity. Such a patient may require treatment from a diverse range of care professionals in a variety of settings, including an orthopaedic surgeon, hospital nurses, a physio-therapist, home care nurses and an occupational therapist, at the minimum. The consequence of the rapid turnover of patients is that the healthcare staff, on the one hand, have to work in a high pressure environment and, on the other, have no time to design a discharge plan for each patient, as recommended.

The situation is further compounded by the complexities arising from the changes in the demographics of the patient population. As a result of the increased life expectancy, there is a greater proportion of older patients, who have special and more complex needs. Additionally, similar to the public hospital system, the community health services too have not had sufficient growth to keep abreast of the demand. Then, unlike in the past, the availability of family carers too is dwindling, due to the modern day lifestyles, career and other commitments of the family. The confluence of an aging demographic, decreasing length of

hospital stay and inadequate discharge planning creates an environment that demands innovative and effective planning to maintain and improve the health status of elderly patients in their transition from inpatient to ambulatory settings.

2.7 Barriers to Effective Discharge Planning

Having considered the frequently noted deficiencies, and an appreciation of the complexity of modern day discharge planning, it is pertinent to enquire into the reasons for the inability to meet the required outcomes. Indeed, there are many reported studies that have sought the perspective of healthcare workers, predominantly nurses, on the perceived barriers (D. Morris et al., 2012; Yam et al., 2013). The general consensus from the findings is that the main barriers to discharge planning could be broadly categorised as those attributable to the system, clinician/healthcare professional, patient, or social factors (Yam et al., 2013), and centre on poor planning and communication, inadequate staffing levels, and poor liaison with external agencies (D. Morris et al., 2012).

Yam et al. (2013) conducted a qualitative study in the form of a focus group discussion (FGD) to understand the barriers to discharge planning, from the perspective of frontline healthcare professionals under public settings. Acute and rehabilitation hospitals, belonging to three clusters, in Hong Kong which had the highest, middle, and lowest unplanned readmission rates in 2009 were chosen. Professionals working for at least ten years in the medical department of these hospitals, since they are most likely to understand the system and provide valuable advice, were invited to participate in the discussion. At least two focus groups were held in each cluster of hospitals, and the group discussion continued until issues were felt to be theoretically saturated and no new relevant data seemed to emerge. This study has provided the important message that poor communication between health and social care

professionals, between healthcare professionals and patients, and among healthcare professionals formed the principal barrier to discharge planning.

The most frequently experienced system-based barrier arises from the tendency to discharge prematurely due to pressures of bed shortage, manpower management, and lack of communication among different healthcare professionals and with the community service provision (Bowles et al., 2003; Durvasula et al., 2015). Awareness and knowledge of patient's psychosocial needs have often been found to be inadequate, which suggests that a comprehensive assessment tool is required (Wong, Yam, Cheung et al., 2011). In Australia, the comprehensive discharge strategy identified assessment of patient physiological, psychological, social, and cultural needs as equally important components in the effective discharge process. A thorough and individualized patient assessment is required to ascertain these needs. In addition, healthcare workers agreed that good documentation is the most beneficial item.

The patient factors are mostly a reflection of the lack of patient knowledge about treatments and on matters such as self-monitoring. Then again, it is partly the healthcare professional's responsibility. Communication between patients and healthcare professionals regarding patient needs after discharge is a critical component of effective discharge planning and continuity of care. Tailored information for each patient should be prepared because of the differences in communication ability of each patient. Patients cannot be expected to have the vocabulary and skills to discuss technical matters with healthcare workers. The lack of communication also influences the carer's ability to manage the patient at home. Such a finding would indicate that the improvement of communication skill is needed in healthcare professionals, patients and carer.

Service and time gap of post-discharge support were also highlighted as major barriers in the social aspect, reflecting the presence of issues in communication, resource allocation, and matching patient's needs. The suggestion put forward by respondents centered on the coordination between the hospital and the community service provision, as well as the review of resource allocation in the community service provision. Again, there is a need to re-educate both sectors as to what information is required. Knowing The format in which information is required would facilitate better understanding and smoother transfer of patients from hospital to home/community.

Mahrous (2013); following a survey of the views of 176 patients discharged from hospitals in Al Madinah, Saudi Arabia in 2012 and their families and concluded that the following may impede recovery after discharge: time limitation on hospital staff to inform patients on their discharge; lack of comprehension of the instructions by some patients; nurses' non-willingness to accept that it is their duty to properly inform the patients; and information being standardised instead of being flexible to fit each patient's needs.

In some societies, such as that of Saudi Arabia, religious beliefs and unique cultural practices that impact heavily on all aspects of life can be an additional barrier to the accepted success of Western-style health care interventions, including discharge planning (Hamdy, 2009). The literature on this issue is discussed in greater detail in a later section.

2.8 Hospital Discharge Process

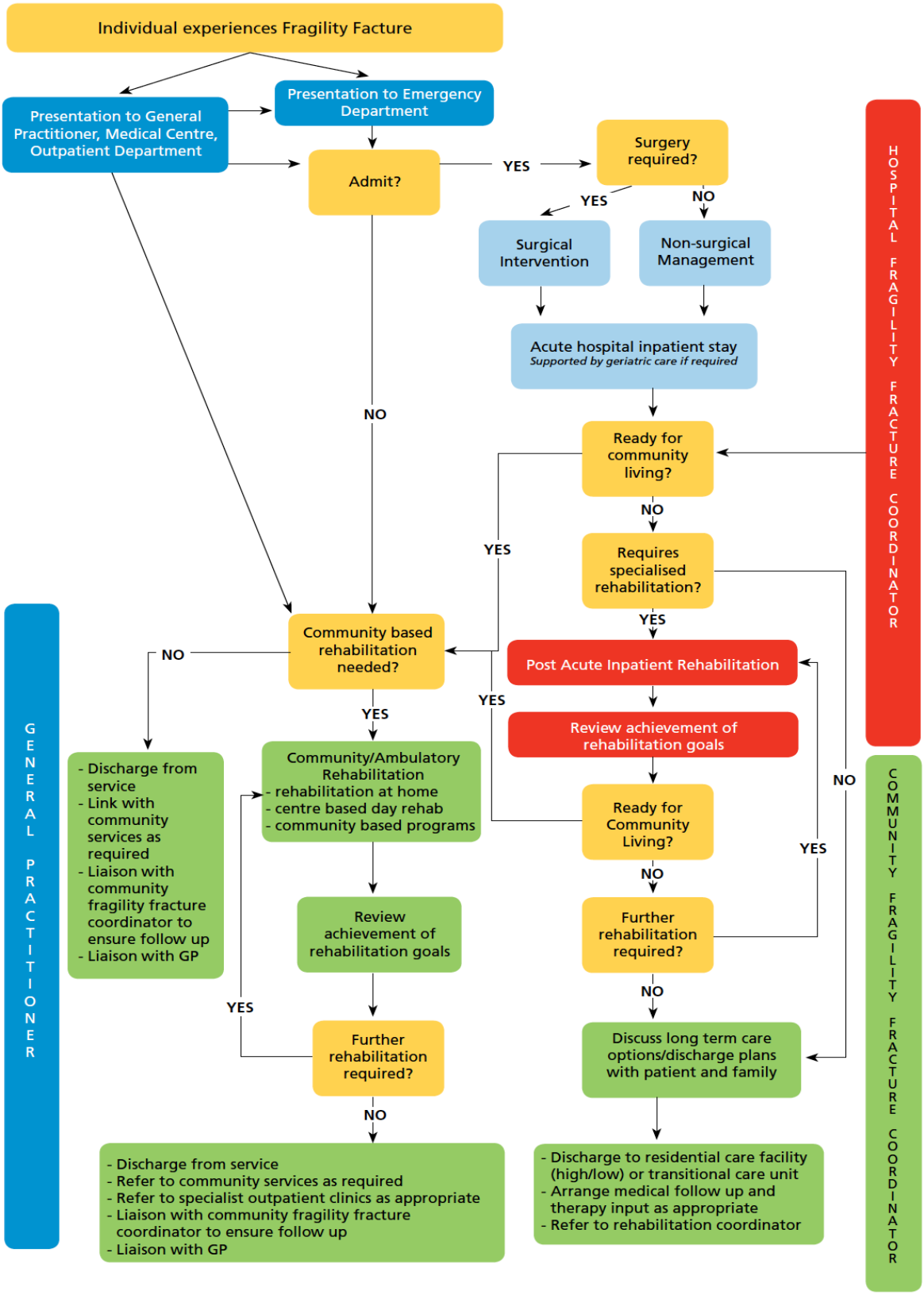
Originally, discharge planning concerned only geriatric patients returning to home care, but has eventually been extended to all patients requiring hospitalisation (Cummings et al., 2013). An Australian study by McMurray et al. (2007) which addressed discharge planning in a wider sense, assessed the care provided to general surgery patients. The researchers

interviewed 13 general surgical patients from public and private hospitals in different States. They found that discharge planning was not of a standardised format across different institutions, and that upon discharge, patients may receive variable or inconsistent advice from different sources, and that there was a lack of assessment of their home conditions and of follow-up patient and carer needs. McMurray et al (2007) concluded that there should be more individualised attention to discharge planning, and that care should be taken to draft instructions considering age, gender, medical condition, and individual circumstances. McMurray et al. (2007) was one of the first studies that concerned general patients, rather than those with chronic conditions, and this may have resulted from the recognition by the researchers of less inadvertent readmissions when robust discharge planning was effected. The need for a discharge process to take into consideration a range of hospital care factors, the patient's socioeconomic circumstances, demographics, health status, and the patient's home environment, was also highlighted by (Frakt, 2013).

To determine each patient's discharge needs and develop a discharge plan a number of elements have been acknowledged internationally as being necessary. Not every element will be required for every patient, as some patients have very straightforward needs (Lim et al., 2009; McKenna et al., 2000; New South Wales Health, 2009). The elements are as follows: assessment of the patient on admission and identification of each patient's potential discharge needs; referrals to allied health personnel; allocation of an estimated date of discharge and collaboration; patient and family participation and identification of the discharge goal; verbal communication between the patient, family and all the members of the healthcare team; and documentation in the patient's medical record of the communication between the healthcare team and community service providers.

As there are potentially multiple elements and many people involved in the discharge planning process, allocation of sufficient time is crucial to ensure that the following occurs: all the activities required for each patient are completed in the timeframe of the patients' illness trajectory; the skilled health care personnel are available and there is good overall coordination of the discharge plan. The final element of the discharge plan is the handing over of the patient's care to the next care provider (Bull & Roberts, 2001; Carroll & Dowling, 2007; Katikireddi & Cloud, 2009).

The South Australian model in Figure 2.3 is a decision tree for a fracture in an elderly person; however, the orthopaedic structure is relevant to discharge planning for a younger person on the left-hand side of the model. The patient is either referred from the healthcare provider, or presents at the emergency centre. The decision is made for surgery and if agreed, for admission to acute care. In the case of fractures from a vehicle incident, for example, specialised rehabilitation may be necessary, especially if there are other injuries involving long term plaster. Of note, there is a hospital fragility fracture coordinator and a similar position in the community to transfer coordination responsibilities from the hospital to the rehabilitation team in the patient's neighbourhood. However, the transfer of responsibility does not occur before the hospital coordinator sets up the discharge plan (Government of South Australia, 2011).



Source: Government of South Australia, 2011, p.8

Figure 2.3 Patient-Related Factors in the Discharge Planning Process

In the United States, Harlan et al. (2010) noted issues with the discharge process adapted by healthcare facilities including delays in setting up services, omissions, and inaccuracies in the discharge information which may result in conflicting instructions. They introduced a new administrative model for transfer of patient responsibility to primary care providers, focussing on enhanced identification of primary carers at discharge, computerisation of the hospital instructions and orders for services, and printable information and order sheets sent immediately to the providers from the hospital. It was trialled successfully on 2,530 patient discharges. In Melbourne, Australia, Kimmel et al. (2012) sought improved decision-making processes in discharge procedures for trauma patients (n = 1429). They also developed an effective decision-based model based on type of fracture, insurance, suburb, labour force status, age of patient and pre-existing disability.

2.9 Discharge Model

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the American Nurses Association (ANA) have identified specific requirements for discharge planning (Lile & Borgeson, 1998). The JCAHO guidelines mandate early identification of patients in need of discharge planning and assessment of available and appropriate research to meet patient post discharge needs. Specific to nurses, the JCAHO guidelines state that patients needing post hospital care must receive individualized instruction and counselling from nurses (Halasyamani et al., 2006).

Additionally, all discharge planning activities and instructions, as well as nursing documentation of patient status at discharge are to be included in the patient record. The American Hospital Association published guidelines for discharge planning (Smith et al., 2006). These guidelines list essential elements for discharge planning; they are early identification of patients who are likely to require post hospital care, patient and family

education, assessment and counselling, discharge plan development, coordination and implementation, and follow-up after discharge.

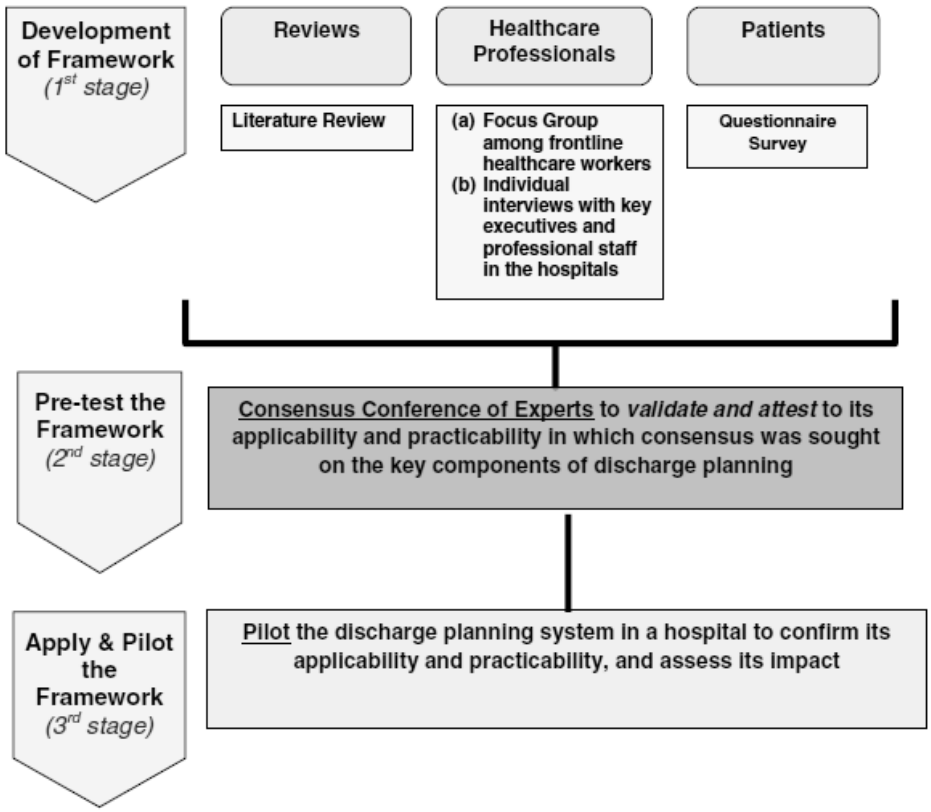
Discharge planning was also characterised as continuation of care. A Canadian research team (Haggerty et al., 2003) conducted a wider literature search and reviewed 583 documents across disciplines and identified three types of continuity of care. The first was informational continuity, where an individual's details and health history was stored; the next, continuity of management, where there was a comprehensive approach to an individual's health condition; and thirdly, relationship management, where a patient and one or more healthcare providers had an ongoing therapeutic relationship. Lin et al. (2006) developed a Taiwanese hospital discharge planning model where case managers screened patients, produced a discharge plan that included information and instructions to the patient, regarding resources and services they could access, and telephone follow-up by the hospital coordinator. This integrated continuity of care or discharge planning was apparently logistically difficult and is discussed in a section below.

2.9.1 Designing a plan

In Hong Kong, Yam et al. (2013) used a consensus approach to designing discharge planning. Hospital staff, comprising physicians, nurses, physiotherapists, occupational therapists and medical social workers, considered four phases for discharge planning: patient assessment, designing a discharge plan, implementing the plan including patient and family training, and follow-up or evaluation. They noted that whilst Australia (adopted strategy), the United States used a mandated aproach and the United Kingdom used a policy framework, Hong Kong's experience was less structured and hospitals had a piecemeal approach to discharge plans, especially concerning rapid turnover of high numbers of patients with an acute illness.

Existing plans predominantly concerned high-risk groups such as the frail elderly and other chronic illness patients. Yam et al. (2013) noted a high level of avoidable readmissions due to the lack of an acceptable system.

In the first stage of their development, Yam et al. (2013) used international frameworks and focus groups of patients and hospital caregivers, and interviews with hospital executives to produce key themes from which they produced statements for the main expert conference (Delphi principle) to test the framework that emerged from the first stage. The last stage was to pilot the framework (Figure 2.4).



Source Yam et al. 2013, p. 399.

Figure 2.4 Designing a Discharge Planning Framework

The key components of discharge planning identified during the second stage of the process concerned the initial screening and assessment, the discharge planning process which

continued through in-patient assessment, implementation and patient follow-up. These aspects were in response to the environment of a large hospital with a high turnover of acute patients, usually three days, and a high level of avoidable re-admissions. Perhaps as a corollary to the discharge planning paper, a similar research team, E. Wong et al. (2012), reported on patient experiences in Hong Kong hospitals, including discharge plans. They interviewed 5030 patients, 80 per cent of whom rated their hospital experience good or better, 69 per cent did not feel involved in their discharge (39% did not wish such involvement); and 7 per cent of participants were delayed during the discharge process, due to 'the system'. Those with medication were uniformly given written instructions on its use. However, 39 per cent said that no friend or relative was given instructions to assist in the patient's recovery; 30 per cent were not told of dangerous symptoms to watch for regarding their illness; and only 43 per cent knew who to contact once they had left the hospital. Of interest, only one per cent included aged care patients, so that the sample may have reflected the Saudi population to a higher degree, given the predominance of frail elderly in the discharge. Aspects of the Yam et al. (2013) process of interest to this study are as follows:

- Timeframes for assessment: screening and care plan within 24 hours from admission, social support immediately after assessment, community support resources to be in place prior to discharge, timely transport, and discharge summary issued to patient or care provider upon discharge, and outpatients within a week of discharge (Shepperd et al., 2013)
- Healthcare providers: a designated person is necessary to coordinate each discharge plan and this may be a discharge planner who can coordinate all stakeholders; a patient care or admissions coordinator; or a case manager
- Communications: the conference experts noted that communications internal to the hospital, external to the hospital and between all stakeholders and the patient were prone to failure. They preferred a structured discharge summary and case conference for each patient to ensure adherence and highlight missing elements of care, should these occur. Computerisation accelerated this process (Yam et al., 2013).

Although it appears overly complex, Yam et al.'s (2012) construction of a discharge planning strategy is valid in the context of Saudi Arabia where the conditions are similar, with no overall strategy already in place. Furthermore, it takes into account the existing national healthcare systems used by practising professionals. These elements are used to address the problem:, that is, a structured discharge care plan that can be adjusted and tailored to suit each patient through case management. The aim is to reduce avoidable re-admissions to the emergency facility and improve the delivery of healthcare, whether in Hong Kong or in Saudi Arabia.

2.9.2 Evidence-Based Practice

Evidence-based practice (EBP) emerged in the late 20th century as the preferred method in all aspects of healthcare, replacing the more bureaucratic or traditional practices. Sackett, Rosenberg, Gray, Haynes, and Richardson (1996, p. 71) explained that 'Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients'. Thus, the rationale of clinical practices should be based on the findings of systematic research. For doctors, evidence-based practice in diagnosis, treatment and management of an ailment requires evidence from cross sectional clinical studies of patients in similar circumstances (Sackett et al., 1996).

In regard to discharge planning, the literature provides several examples on the development of evidence-based protocols for the purpose, highlighting the advantages of such protocols, compared to ad-hoc decision making. Farach, Danielson, Walford, Harmel, and Chandler (2014) describe an evidence-based fast-track surgery protocol for same-day discharge after appendectomy. This was applied to 206 patients presenting for appendectomy over a period of one year (2012/2013). Of them, 185 (90%) were successfully discharged according to the

protocol. The mean length of stay after appendectomy was 3.1 ± 1.4 hours. The decreased use of hospital resources resulted in a median reduction of hospital charges of $4111 per patient. The complication rate for patients discharged the same day was 2.7 per cent. Authors concluded that the implementation of this protocol resulted in optimization of resource use by reducing inpatient admissions, decreasing handoffs, and reducing hospital costs.

There are several discharge planning tools developed by combining clinical evidence and input from panels of experts on the subject. Kimmel et al. (2012) performed a study to describe the ability of an evidence-based discharge planning decision support tool – Early Screen for Discharge Planning (ESDP) – to identify and prioritise patients appropriate for early discharge planning intervention. Specifically, they aimed to determine whether patients with either high or low ESDP scores varied in the problems they encountered following discharge and in their continuing care needs. They did vary, indeed, suggesting that the ESDP is effective as a decision support tool in identifying patients to prioritise for early discharge planning intervention (Durvasula et al., 2015). Thus, use of an evidence-based discharge planning decision support tool minimizes biases inherent in decision-making, promotes efficient use of hospital's planning resources, and improves the opportunity for patients to access community resources they need to promote successful recovery after hospitalisation.

A similar conclusion was arrived at by (Gupta, 2004) who found a consensus by a panel of international clinical experts in anaesthesia and post-anaesthesia care on the use of an evidence-based tool to assess patient readiness for discharge from a post-anaesthesia care unit and specific variables to be included or excluded from the tool. In this instance, where 23 experts contributed to the panel, consensus (at least 75% agreement), was sought in regard to 24 criteria considered essential: for example, respiratory rate 100%; pain 100%; heart rate 95%; temperature 91%. Consensus was also reached for 15 criteria not considered essential

(for example, appetite 96%; headache 76%). Consensus was not obtained for a further 10 criteria. Participants (95%) agreed that a discharge tool was important to ensure safe patient discharge. However, there is no indication of the protocol being tested or put to practice.

Hopkinson et al. (2012) has described the development and testing of a Chronic Obstructive Pulmonary Disorder (COPD) discharge care bundle comprising a short list of evidence-based practices to be implemented prior to discharge of COPD patients. The care bundle was developed taking into account the research findings together with inputs from a panel of experts. It was tested on 1156 COPD patients, and they found that the 30-day re-admission was reduced to 10.8% (when the care bundle accompanied the patients) from 16.4% (when the care bundle was not used).

All indications are that, in Saudi Arabia, evidence-based practice has not been pursued in the past, in many healthcare activities. However, the limited literature available suggests that there is greater dependence on the healthcare professionals' experience, to improve patient outcomes (Altallal, 2013). In Saudi Arabia, there is an additional element that comes into play. With its large expatriate healthcare workforce, the practices that a hospital may or may not impose may be influenced by the traditional practices healthcare professionals bring with them and teach to the Saudi workforce (Altallal, 2013). There is therefore a very strong indication that further research is necessary to identify practices that do not align with global standards. Further, the literature strongly supports the evidence that socio-psychological (cultural) aspects of the individual affect recovery rates after surgery.

2.9.3 Implementing a plan

Proper implementation of the plan is as important as the planning process for providing efficient and continuous care to ensure re-admission and reduce hospitalisation costs.

Hesselink et al. (2012) explored the parameters to patient-centred care in discharge planning, by conducting 192 interviews with care givers, patients or family members, across five European countries: The Netherlands, Sweden, Poland, Spain and Italy, they found 15 categories which were allocated to four themes of current concern in those countries. These themes are briefly discussed below, highlighting the potential barriers to proper implementation of the plan as revealed by the above study are:

Care provider issues

- Timing: patients and caregivers acknowledge the importance of discharge consultation for in-patients and their families, but coordinating physician or nurse and patient relations remains an issue. Discharge should be a decision based on the consideration of patient's welfare rather than only on cost saving or freeing hospital beds (Durvasula et al., 2015; Hesselink et al., 2012; D. Morris et al., 2012; Yam et al., 2013).
- Conflicting demands: departing patients and new arrivals may overlap, and nurses are rushed in explaining the discharge and after care procedures and salient information.
- Standard discharge consultation: this was often omitted due to time constraints so that it is often not performed at all, particularly with patients in surgical wards. Discharge information delivered in piecemeal fashion often leaves the patient confused and forgetful of instructions.

Decision-making within the discharge process

- Involving patients with the discharge planning process: this had a mixed response, although physicians commented that some patients were suddenly discharged, which overwhelmed the patients.
- Patients' desires: these may be to remain in the hospital or to go home prematurely, which may conflict with their condition or hospital policy. This is a source of avoidable readmissions (Chern et al., 2014; Hesselink et al., 2012).

Individualised needs and preferences

- Estimating patients' knowledge, capacities and resources: Patients often overestimate their ability to function; thus they may be sent home with insufficient support, or insufficient instructions, for instance, on wound dressing or how to care for your plaster cast.
- Patient preparedness for discharge: Care providers said that patients needed time to return home, perhaps setting up a support system or resources for self-care. Nurses said that patients should be encouraged towards self-care while in the hospital so that they were better prepared for discharge (Harlan et al., 2010; Hesselink et al., 2012).

- Quality of information and discharge instructions upon discharge: discharge instructions were often absent or incomplete; physicians used technical terms which obscured their instructions. Discharge nurses noted responses to confusion as having family members present during discharge and explaining pertinent points to them; demonstrating and monitoring self-care practices; checking that patients understood the instructions; and highlighting important aspects of the discharge letter (Hesselink et al., 2012; Zavala & Shaffer, 2011).

Organisational factors

- Shift work healthcare providers: lack of consistency in personal relationships leads to issues regarding discharge when pertinent information is missed, or successive team members give conflicting information or instructions, hence the need for written instructions (Altallal, 2013; Hesselink et al., 2012).
- Early discharge: Discharge is often associated with profit in private hospitals and pay-by-procedure in public hospitals, or lack of available hospital beds may result in early discharge. This may lead to avoidable re-admission. Weekend or holiday discharge, when there is a fall in available resources, is also an issue (Durvasula et al., 2015; Hesselink et al., 2012; J. Morris, 2011).

Ideally, there should be provision in the implementation, for the evaluation of health outcomes of the patient, which should consider the following criteria: functional ability/functional limitations; symptoms/medical condition management/adverse outcomes; unmet needs after hospital discharge; coping with disease /coping difficulties; health related quality of life satisfaction with care during the discharge planning process;and health care utilization, for example, number of hospital or GP visits (Mabire, Monod, Dwyer, & Pellet, 2013).

In this regard, it is pertinent to make reference to the following three examples listed in the literature, as successfully implemented care transition programs, in hospital to home transfers. These programs not only reduced re-admissions and improved patient outcomes, but also reduced costs. Each of these programs incorporated most of the best practices in care transitions, and each has been subsequently implemented elsewhere in the USA.

The Care Transitions Intervention (Coleman, Parry, Chalmers, & Min, 2006)**:** In this intervention conducted in Colorado, USA, from 2002 to 2003, advanced practice nurses met with high-risk elderly patients prior to discharge, then conducted one home visit and three phone calls over four weeks following discharge. The intervention reduced the 30-day re-admissions by 30 percent and the 180-day re-admissions by 17 percent, and had an estimated 15 per cent net savings ($390 per patient) in total hospitalization costs six months after the intervention, after factoring in the program costs.

The Transitional Care Model (Naylor et al., 2004): This intervention was conducted in six academic and community hospitals in Philadelphia from 1997 to 2001. Advanced practice nurses provided a minimum of eight home visits to high-risk elderly patients for three months, and were available by phone seven days a week. The intervention reduced the readmission rate after one year by 36 percent, and net costs fell by 38 percent ($4,845 per patient) in the year after discharge. Program costs were factored into the net savings estimate.

Project RED (Re-engineered Discharge) (Jack et al., 2009): This intervention was conducted at the Boston Medical Center from 2003 to 2004. Nurse discharge advocates met in person with patients before their discharge, made follow-up appointments with primary care physicians (PCPs), and sent discharge summaries to PCPs. Pharmacists called patients two to four days after discharge to review medications and communicated problems to PCPs. The intervention reduced the combined rate of 30-day readmissions and emergency department (ED) visits by 30 percent. Total health care spending in the 30 days after discharge dropped by 34 percent ($412 per patient) before deducting the cost of the intervention. It is evident that the essential feature of the above three programs is the emphasis on frequent communication, highlighting its value and the constant monitoring, as a result.

To implement, evaluate and investigate hospital discharge planning systems, the need for data access and control is paramount. Data may concern morbidity, that is, tracking a particular disease such as a type of cancer; or they may be derived from generalised sections of an individual's record. This record may contain personal information, medical history from one or more sources, procedures, next visit, allergies, current information on medication, pathology test results and test images, and billing information. All of these data add to the status of a nation's health and are useful for discharge process and healthcare planning: for example, an immunisation program against measles, if a proportion of the population falls under the desired level. Ferlie (2010) commented on the issue of records, stating that patients' healthcare histories were fragmented as they were associated with the organisations that collected them, not with the individuals whom the records described and measured. This matter has received considerable attention from researchers and international organisations.

As databases became larger due to technological advances, García and Pérez (1998) call became viable. Coloma et al. (2011) described a European project that linked the electronic healthcare records of over 19 million people for monitoring drug safety from eight databases in four countries: the UK, Italy, Denmark, and the Netherlands. In Olmsted County, Minnesota, St. Sauver et al. (2011) reported on a project that captured medical records for 486,564 individuals for 40 years. From 1966 to the time of record, 2008, 1,145,856 medical records were linked to the individuals and validated by census and enquiry. The researchers advocated for such medical records linkage systems to maintain a continuously updated census and for studies such as early visit to ED and discharge protocol. It would be vital to the Gulf region nations such as UAE, Kuwait, Oman and SA, to obtain such a project.

2.9.4 Origin of case management

Case management is a US based system of care that provides an insurance-based framework to coordinate and provide health and social services for people with complex care needs. Typically, a case manager is a single point of contact for patients who need a complex range of services. A case management service is expected to maximise the patient's capacity for independent living in the environment of his/her choice and develop service systems that are better in meeting patients' needs (Cooper & Roberts, 2006). Case Managers understand how each system interacts with the other and the importance of getting that interaction right (Cooper & Roberts, 2006; Hutt, Rosen, & McCauley, 2004). It does, however, define what services a patient can have. Managed care systems refer to the management of patients jointly by the insurance companies and hospitals to seek efficiencies in care, in an environment where cost containment was a priority. The US style managed care is not found in SA, and is not embedded into the Saudi Health Insurance System either yet. Therefore, this current study will find the most appropriate model or philosophies that fit well with the Saudi community.

Although there are some similarities between discharge planning and case management services, the coverage of services by case management is broader. The goal of discharge planning is to assure continuity of patient care while ensuring the shortest possible hospital stay (Anderson & Stafford, 2002). Case management, on the other hand, has some follow-up over an extended period of time. Cooper and Roberts (2006) outlined that case managers understand how each system interacts with each other and the importance of maximizing the interaction. The length of time over which case management evaluation and intervention occurs is determined by the patient's physical, psychological status, overall health and success of the care plan (Bakody, 2009; Cooper & Roberts, 2006).

Case management, according to Woodside and McClam (2013), comprises three aspects: assessment, planning and implementation, with the objective being to arrange for a patient to manage a condition, and to provide expertise and support in a crisis. This is achieved by coordinating professional and occupational services that the patient requires, and these services can include certainly full communications, and gathering and assessing case data from primary and secondary sources. For the case manager, this is followed by seeking approvals from responsible entities, including legal and financial, planning and reporting. It is necessary to evaluate the plan against case management criteria, and to specify criteria or standards for implementation (Woodside & McClam 2013).

However, Reynolds (2013) in the United States warns against extending case managers' responsibilities, citing stresses of role confusion and role ambiguity,and/or requiring intensive levels of support on either an ongoing, short term or episodic basis. A case management service is expected to maximise the patient's capacity for independent living in the environment of his/her choice and developing service systems that are better in meeting patients' needs (Cooper & Roberts, 2006).

The most effective use of case management services for patients with limb injury is to target patients who are at high risk for returning to ED or readmission and those with complex in home needs, such as the elderly and patients with special needs. The coordination of patients' health care, and/or community services, begins either at the time of admission or shortly after, and continues following the patient's hospital discharge for an unspecified length of time. The length of time over which case management evaluation and intervention occurs is determined by the patient's physical, psychological status, overall health and successes of the care plan (Bakody, 2009; Cooper & Roberts, 2006).

The objective of case managers is to arrange for a patient to manage a condition, and to provide expertise and support in a crisis (Woodside & McClam, 2013). For the case manager, this is followed by seeking approvals from responsible entities, including legal and financial, planning and reporting. It is necessary to evaluate the plan against case management criteria, and to specify criteria or standards for implementation (Woodside & McClam 2013). However, Reynolds (2013) in the United States warns against extending case managers' responsibilities, citing stresses of role confusion and role ambiguity. Reynolds stated that hospital case management practices differ in their concept of quality, advocacy, and care coordination. The researcher called for restructuring for the case manager job statement to bring it into line with other organisational responsibilities to avoid ambiguity of purpose (Reynolds, 2013).

Of the case management elements, Brown, Peikes, Peterson, Schore, and Razafindrakoto , (2012) explain that, in the United States, comprehensive communications, although time consuming, reduced involuntary readmissions. They nominated frequent physical meetings as well as telephone contact; meeting with providers on a semi-regular basis to coordinate any overlaps or gaps that may arise; making patients aware of evidence-based information on their condition; providing rigorous management of medication; and ensuring the patient is comfortable and secure at home after hospitalisation. Nevertheless, these measures should be cost-neutral: that is, case management cost and hospitalisation savings should be equal (Brown et al. 2012).

2.9.5 Discharge planning for orthopaedic patients

Bone and joint ailments that require orthopaedic treatment are serious, disabling and costly, regardless of the age of the sufferer. They may result from accidents at home or the work

place, motor vehicle accidents, sports injuries, or in some cases, chronic diseases: for example, diabetes leading to amputation of limbs. Although comparatively, they are less of a problem and often of short duration in the younger individuals, in the older adults, conditions such as a upper or lower limb fracture could result in significant functional decline, loss of independence and poor quality of life (Mkandawire, Boot, Braithwaite, & Patterson, 2002). Care transfer planning is particularly relevant to orthopaedic patients because often, after the initial surgery or manipulation to correct the abnormality, it is hardly necessary for the patient to remain hospitalized for recovery. Indeed, a considerable number of reports on care transfer in orthopaedic patients are concerned with care after day surgery or outpatient clinic attendance. Nonetheless, due to the very nature of their condition, often resulting in immobility, their post-discharge needs are complex, and require the participation of multi-disciplinary healthcare professionals.

When limb injury patients have an immobilising cast for several weeks, there is a significant reduction of physical activity, and their bone mineral mass production decreases (Ceroni et al., 2013). There are implications for physiotherapy after the cast is removed; as Gad et al. (2011) showed, adults and older people lower limb fractures were less physically active than their cohort (Peiris, Taylor, & Shields, 2013).

There are several reports in the literature to indicate that such issues can be addressed by well-planned discharge and follow-up procedures. In one instance, Shah et al. (2008) reports of a highly successful program carried out on 100 patients discharged after orthopaedic surgery. The study was aimed at investigating patient expectations and satisfaction with discharge planning, assessing areas of patient concerns and determining the appropriate length of hospital stay. The patients completed a questionnaire at the time of discharge and six days later. The scheme was found to be highly successful, well received by both patients

and the staff. Since the introduction of the plan, the average hospital stay was reduced by half in the first 18 months. Only two patients who participated in the study required re-admission. Similar successes with well-developed discharge planning have been reported from Oman (Al-Maqbali, 2014) and Taiwan (Lin, Wang, Chang & Yang, 2004).

In some cases, orthopaedic patients are cared for in the outpatients' clinic, without the need for hospitalization. Oldmeadow et al. (2007) found that nearly two-thirds (63%) of 52 patients with non-urgent musculoskeletal conditions who were referred by their primary care physician to an outpatient clinic were appropriately assessed and managed by physiotherapists. In Canada, Desmeules et al. (2013) studied a similar concept of outpatient orthopaedic care involving advanced practice physiotherapists. The researchers studied the diagnosis, treatment, and patient satisfaction from a physiotherapist's intervention with that from an orthopaedic surgeon. Their findings were a high level of agreement on diagnosis, treatment was better received, and there was a high level of patient satisfaction with the physiotherapist option. Again in Australia, Schoch and Adair (2012) noted that in the search for efficiency, organisations must utilise existing resources, particularly in orthopaedic care. A hospital system in southern Victoria, Barwon Health, adapted its orthopaedic outpatient service to take into account existing issues such as increasing numbers of referrals, inefficient referral management, thus long patient waiting times, and use of conservative therapies (Schoch & Adair, 2012). They adopted new guidelines and audits, and introduced a position of orthopaedic lead nurse. The substantial administrative changes led to a 66 per cent reduction in waiting lists, and improved referral and communication processes.

There are additional factors that may play a role here. For example, anxiety regarding the injury, treatment and the combined effects on the patient's ability to function may interfere

with the healing process. During the rehabilitation phase after lower limb injury, depression, social isolation, and anxiety are common. Anxiety that results from fear of engaging in activities that precipitate pain causes patients to avoid physical activity. Simons, Kaczynski, Conroy, and Logan (2012) in Boston, Massachussets, USA, studied 145 young people's pain-related fear, disability, and depression within the context of an intensive pain rehabilitation program. Authors found that disability and depressive symptoms were linked to pain-related fear and overcoming this fear led to improved health outcomes.

In an effort to determine the duration of the resulting mental disorders, McCarthy et al. (2007) assessed 545 patients who experienced lower limb injuries and completed at least one survey at 3, 6, 12 and 24 months after the incident, and 385 completed all four. Forty-eight per cent of the patients exhibited signs of a psychological disorder at 3 months, while even at 24 months, 42 per cent remained at risk. The responsible factors were restricted mobility, younger age, poverty, and limited social support. In Sri Lanka, Abeyasinghe et al. (2012) sought post-traumatic stress disorder among 96 soldiers undergoing rehabilitation after injury or amputation of a limb. It was found that 41.7 per cent of the soldiers exhibited signs compatible with a psychological disorder, requiring the provision of psychological care as a part of the rehabilitation process. Over a period of 5 years, Sorberg et al. (2012) studied 105 Norwegians who received multiple trauma injuries. The researchers concluded that both mental and physical health improved although it remained significantly below that of the general population. Lifestyle, type of injury and ability to adjust back into society were predictors of health.

Treatment of psychological issues in limb injury patients continues during and after hospital discharge, especially in the case of older people who may wish to stay independent (Denson,

Winefield, & Beilby, 2013). In assessing the psychological health of returning United States women soldiers who lost limbs (n = 24), it has been found that a positive attitude, resiliency, training, humour and social support influenced their recovery. Other means of promoting resilience and physical activity in those who have a disability included socioeconomic position, social support and social networks, social cohesion and neighbourhood factors (McNeill, Kreuter, & Subramanian, 2006).

2.10 Discharge Planning in Saudi Arabia

In practice, the hospitals in Saudi Arabia are required to follow all the required elements of a properly constructed discharge plan, when patient care is being transferred from hospital to home. However, it is not done according to a cohesive and systematic plan. This was the observation of Mahrous (2013), the only published article on discharge planning as applied specifically to the Saudi Arabian context. Mahrous investigated the major determinants of patient satisfaction and outcomes, in a sample of 176 patients, following discharge from the hospitals in one of the healthcare administration regions of Saudi Arabia. The results showed very low percentages of satisfaction in governmental hospitals ranging from 19.3% and 50% with regard to all necessary information given to the patient or his/her guardian during discharge process. The failure to meet the patients' information needs during hospital discharge is an important quality indicator that leads to dissatisfaction and poor quality outcomes. Mahrous (2013) also found that, patients leaving private or public hospitals in AlMadinah were satisfied with their verbal and written instructions, although not the hospitals' follow-up outpatient procedures. Outpatient satisfaction was the focus of a study by Sadat and AlOthman (2013) at King Fahd University Hospital, Al-Khobar. The researchers surveyed 400 orthopaedic patients, 68 per cent of whom were Saudi citizens. Of the sample, 85 per cent expressed overall satisfaction with their outpatient experience,

although timing of appointments was a cause of dissatisfaction.

One of the problematic areas in Saudi Arabian healthcare relates to ensuring the hospital patient understands the instructions given by the staff, as many healthcare providers are expatriates, who have only a low grasp of Arabic language (Almutairi, 2012). Atallah, Hamdan, AlSayed, and Aboshaiqah (2013) surveyed 100 patients and their families from one Saudi hospital, finding that whilst patients were satisfied with nursing care (86%) they were less so with language (44%) and discharge information (44%). Atallah et al. called for greater attention to communications with patients, and to ensure that individuals were satisfied that they knew their health routines, and were aware of risks that may arise, and the correct contacts to ask for assistance. Discharge of limb injury patients in Saudi Arabia requires coordination of the hospital staff to provide support for the patient and family through pain control, equipment, a daily routine and later exercise and rehabilitation (Mahrous, 2013).

As discussed previously, the fact that the healthcare staff works on a shift basis, the use of English, and low comprehensive power of some patients, are important considerations when discussing matters on communication within the hospital setting (Almutairi, 2012; Altallal, 2013). Once the patient has left the hospital, communications are initiated when necessary by the hospital or by the patient. In Riyadh, Brown et al. (2009) used three years of data from the King Faisal Specialist Hospital to study the appointment attendance of 199 cancer patients. Of those patients, the team recorded 340 missed appointments. Of those, 34 per cent were hospital-based communication issues, 17.6 per cent were patient-based communications and 30 per cent other patient-based issues. The remainder could not be contacted. In a further study, Albedaiwi and Alaloola (2008) studied data for 1983 patients at Riyadh's King Abdulaziz Medical City, finding an average of some 83 per cent satisfaction with the hospital

experience; significantly less with perceived politeness of staff (average 40%). Thus the orthopaedic outpatient experience in Saudi Arabia appears satisfactory to all but a minority of patients, perhaps 15 to 20 per cent. The satisfaction surveys conducted over the years appear to be relatively static. This is based on an extensive expansion of primary healthcare through expatriate professionals and significantly upgrading the education system to produce a Saudi healthcare workforce.

Many patients presenting to the emergency department or after a short in-patient stay with uncomplicated limb injury experience treatments and the discharge process without complication. However, the most 'at risk' for communication errors and difficulties with discharge instructions are those who live alone, those whose first language is not Arabic or English (the language of the health services), are poor, are hard of hearing or elderly. Wong et al. (2002) pointed out that patients who were readmitted to hospital usually had unmet needs and developed complications from existing problems or they had inadequate rehabilitation. Patients with limb injury, including those with non-major injury, often cannot manage their health care needs independently, especially during the transitional period (from acute to rehabilitation) and are likely to have the burden of a plaster cast. Some do not have family members who can assist their needs or speak on their behalf such as an expatriate in KSA. According to The Standard of Clinical Nursing Practice of the American Nurses Association (American Nurses Association, 2001), nurses are expected to take management responsibility for their patient's health care needs. To meet these patients' needs during their transitional period, designing a discharge model of care for patients who sustain limb injury would bring these patients the benefit of collaborative quality improvement across the healthcare system in KSA.

2.11 Influence of Religion and Culture

When addressing any subject matter in relation to an Arabic country such as Saudi Arabia, the discussion is not complete without considering it in a cultural context. Such is the enormity of the influence of culture on every sphere of human life, whether it is human relations, food, law or healthcare. Saudi Arabia is characterised by a highly conservative culture which is built on the teachings of the Islamic religion. Therefore, it is important to realise that even matters on healthcare in Saudi Arabia need to be viewed from an Islamic perspective.

Basic to belonging to Islam, or being a Muslim, is faith in God – Allah. In order to retain the purity of that faith one must accept that everything in his/her life is determined by God. As a result, people generally have a fatalistic attitude to life. The following section discusses the possible impact of the fatalistic attitude, which is common among the people in Saudi Arabia, on the patient outcomes, whether in a hospital setting or after discharge.

2.11.1 Fatalism

Religious beliefs in Saudi Arabia are considered an essential part of the individual life and in certain countries fatalisms in Saudi society are considered the main core of living. Hamdy (2009, p. 179) defined fate as the doctrine that everything in life is predetermined by fate and in turn unalterable. However, Hamdy (2009) and other social researchers such as Acevedo (2008) have defined fatalism in religion in an extremely different way from the Islamic view of fate and fatalism. Fatalism in Islam refers to the belief that God created the ways of doing things in life such as treatments and medication. For example, if there is treatment for cancer all the attempts being undertaken to find it will not be successful without God's will. This means that Muslim believers consider all their life experience either joyful or painful as good

for them, as when they experience joy they thank God and when they experience pain they also thank God for the compensation they will get later in life or in the afterlife.

There is wide agreement in the medical literature that there is an ill-defined relationship between the notion of external control (God's will, fatalism) and religion. However, the relationship may be positive (Grace et al., 2008) or negative (Drew & Schoenberg, 2011) and is usually studied in countries with a range of different religions. Although there is anecdotal evidence to indicate the fatalistic attitude of the majority of Saudis in matters of healthcare, there are not many systematic studies to determine its effects on people's medical concerns or on any aspect of life, barring that by Hamdy (2009). However, some insight can be garnered from the study by Kayani (2011) who researched the influence of fatalism on road safety in Pakistan, another predominantly Muslim country. Kayani presents a very useful insight into fatalism in Pakistani society, and its consequence of risk-taking behaviour, believing that if one is destined to meet with a road accident, it will happen, no matter what.

2.11.2 Fatalism and risk taking behaviour

People who are fatalistic are more prone to be indulging in risk-taking behaviour (Kayani, 2011). For example, on the subject of road accidents in Pakistan, even professional drivers admit that they often drove erratically; according to them, life is not in their control and traffic accidents are not preventable (Kayani, Fleiter, & King, 2014). In the case of healthcare matters, it will manifest as a disregard of health professional advice and non-compliance with instructions or recommended medication regimes. People with fatalistic attitudes are likely to have a "why bother?" logic, thinking that "if I am destined to get better, I will, regardless of whether I seek treatment or not". Thus, it is imperative that all healthcare interventions, including hospital discharge planning, in the Saudi society be considered against the background of the potential adherence or non-adherence by the patients, depending on their

convictions. However, as will be discussed in a later section, and has been referred to by Hamdy (2009), it may be possible for the skilled and culturally-competent professionals to use such beliefs to obtain positive outcomes in patient care.

2.11.3 Implications of fatalism and healthcare interventions

In the health sciences, fatalism has been applied to account for health behaviour and even health outcomes. Investigators classify as fatalistic those individuals who believe that health is "a matter of fate or luck and beyond an individual's control" (Drew & Schoenberg, 2011). For example, despite the availability of information on the benefits of mammograms in early diagnosis of breast cancer in women, if certain groups of women avoid such screening programs, researchers have attributed such decisions to fatalism or other related psychosocial reasons (ref).

The somewhat paradoxical beliefs associated with fatalism were highlighted by Hamdy (2009) who discovered that several transplant surgeons in Egypt admitted that they themselves would never undergo a transplant operation because they believed that only God owns the body. A Turkish study investigated the self-protecting behaviours related to earthquakes and traffic crashes in terms of perception of control, illusion of control, and fatalism (Türküm, 2006). The results affirmed that perception of control and illusion of control are related to overestimating one's power, whereas fatalism seems to be related to strong belief in external powers with regard to past, present and future events.

Coyne et al (2006) conducted a study in the Appalachian regions of the United States and found that health beliefs were strongly related to religious beliefs and practices. Participants regarded disease and "accidents", like other hardships, as inevitably a part of their lives.

Similar findings were reported by Drew and Schoenberg (2011) who investigated the attitudes to cancers of the ovary and breasts, and cancer-screening, in two rural populations in USA and China respectively. They found that women who were very fatalistic tended to have low self-esteem, were less likely to participate in screening tests, and believed that there was very little they can do to change their fate. Together, these research findings highlight the potential strength of fatalistic beliefs in shaping health protective and injury prevention behaviours. However, Drew & Schoenberg (2011) point out that such attitudes do not necessarily signify powerlessness or hopelessness. Rather, such expressions are a culturally acceptable way of expressing oneself in times of great challenge and when facing constrained choices.

Hamdy (2009) too cautions against the misinterpretation of the steadfastness of those of Islamic faith, in the face of suffering, as passive, anti-science fatalism that stands in the way of benefitting from proven medical interventions. Hamdy argues that one should not question whether the patients choose to pray to God to make them better, or to seek effective medical interventions. It is better to attempt to understand the interrelation between the two approaches and utilise it to achieve the best outcome, the author suggests. Such an understanding will provide the nurses with the tools and skills for enhancing the patients' psychological wellbeing and in turn their health outcomes (Almutairi, 2012, p. 34). Several studies to investigate the rate of satisfaction and peaceful emotions experienced by patients, both of Muslim and other faiths, found that belief in fate actually contributed to the improvement of patients' psychological wellbeing (Acevedo, 2008; Greenfield, 2013; Hamdy, 2009). For example, Hamdy (2009) describes how a participating patient in the Tanta University Hospital study expressed that he turned from a person who does not care about prayers or religion before the diagnosis of his ailment to someone who became more

punctual in daily prayers after the diagnosis. Moreover, his feelings and psychological satisfaction incoming to terms with his physical condition improved after consolidating his belief in God.

At the discharge stage, nurses who have a good understanding of how Muslim believers face life experiences, could turn the negative perception and interpretation of pain, suffering, physical limitation and social problems into a positive experience that led to positive and effective health outcomes (Chen et al., 2012; Hamdy, 2009). For example, in the study conducted by Hamdy (2009) one participant worked upon himself through his pain to cultivate dispositions that he saw were righteous and that would prepare him for his final day of meeting God. Indeed, some pain was regarded as a blessing, as a reminder of God, and as something for which the person should be thankful. Such beliefs were more powerful than just giving in to pain. It is particularly so, in situations where a suitable medical treatment is not available or inaccessible, when patients will be forced to suffer anyway. It is understandable why a belief in life-time or after life rewards from God would be the best compensation to be sought in such situations.

2.12 Limitations of the Literature

The above represents a sample of the recent literature on the subject of discharge planning, as relevant to the scope of the studies described in this thesis. It is evident that, despite the amount of published studies in recent times, there still remains a paucity of quality research examining transitional care and in particular for orthopaedic patients in the gulf region. Such a knowledge gap is a concern, considering the large number of care transfers that occur each day all over the world, and the importance of this topic for ensuring high-quality care of patients with complex care needs. Review of the existing literature suggests that the research

effort has been more on identifying the problems and less on finding solutions. If the quality of discharge care is to improve, research is needed on testing different discharge planning models specific to different situations, as it is likely that no single model will be universally applicable. Research is also needed to demonstrate how to foster collaboration between healthcare institutions and other agencies involved in discharge care (Coleman, 2003). Another important area of contemporary requirement is research into strategies to exploit the tremendous potential of modern information technology systems to address the various issues related to post-discharge care of patients.

2.13 Conclusion

Discharge planning for patients with limb injuries refers to the process of preparation for the safe hand over of the patient to the next care facility, in a manner that ensures the continuation of appropriate care, with the aim of improving the patient outcome as well as cost reduction. The development of a discharge plan is necessary, and is a part of an integrated package of care, making it difficult to study the effect of discharge planning alone. Although the evidence in the literature suggests that the impact of discharge planning is minor, it is possible that even a small reduction in re-admission rate could have a positive impact on the efficient use of the facilities in Saudi health care systems where there is a shortage of acute hospital beds. The literature search showed some relevant Saudi studies, results of which, when examined together, suggest that discharge planning in Saudi Arabia, as is currently practiced, is “piecemeal” in nature, and generally inefficient. The majority of studies and the associated discussions on the subject appear in the global literature as goals more than achievements. Cultural beliefs and practices could be a hindrance to discharge planning by the healthcare system and compliance by patients, especially for those who are mistaken to believe that injury is an integral element of human fate and part of human

destiny. On the other hand religious and cultural beliefs and practices could be merely a comfort mechanism to appease those without access to good and affordable medical care.

CHAPTER THREE: RESEARCH DESIGN

3.1 Introduction

The research approach and the choice of design were determined, essentially, in accordance with the type of research questions raised. The main focus of the present study was on the three research questions relevant to hospital discharge planning. Accordingly, a mixed method design was chosen as the best approach to collect the required data and the undertake analysis. The design comprised two phases of data collection: Phase one was a questionnaire based quantitative data collection, and Phase two an interview-based qualitative data approach. The data collection strategies were then utilized to complement each other. Integration was important to consider at the earliest stage of design and conceptualization of the study.

This chapter begins with an introduction to the mixed method approach and a discussion on its development, the rationale for choosing mixed method, the strengths and limitations. It is followed by a description of the study setting, the ethical considerations, sampling methods, recruitment process, data collection strategies, data quality and analysis in the quantitative phase. The qualitative phase includes discussion about the data collection, data analysis and strategies undertaken to ensure rigour and trustworthiness of the findings.

3.2 Research Strategies

The research sought to identify the factors that may affect discharge planning for patients with limb injury who sought treatment at selected Saudi Arabian hospitals and the general attitude towards injuries. The research design took into account the necessity to answer the research questions, and the specification of the reasons for the study and the reliability of the study (Beck & Polit, 2013).

According to Creswell (2013, p. 601), the qualitative and quantitative mixed method is a research approach for collecting, analysing and mixing both qualitative and quantitative data in a research study to understand a research problem and explore several aspects of the topic. That involves collecting, analysing, and interpretation of quantitative and qualitative data in a single study investigating the same phenomenon. However, the researcher needs to have a proper understanding of the concept of using both quantitative and qualitative methods together, and it is essential to describe the mixed methods in a way that facilitates the reader's understanding and to assist familiarisation with the research design.

A number of authors (Clark & Creswell, 2014; Creswell, 2013; Tashakkori & Teddie, 2010) have suggested combining quantitative and qualitative methods to generate unique and important information, and it is increasingly found within social sciences research. The strengths of such an approach are well documented in the literature. According to Onwuegbuzie and Frels (2014) the two major rationales to conduct mixed-methods data analysis are representation and legitimation. Representation means extracting adequate information from a sample of adequate size to represent the population under study. Legitimation refers to the validity of the data and their interpretation. Andrew and Halcomb (2011) believed that the mixed-methods model was growing in popularity, because it builds on the strengths while minimizing the weaknesses of a solely quantitative or a qualitative approach. Using more than one research approach in a study offers a greater chance for a complete picture to emerge, thus enhancing the understanding of subject and achievement of the research goals.

3.3 Integration in Mixed Method Design

Combined quantitative and qualitative design has become a distinctive research approach in its own right, as opposed to quantitative or qualitative research on its own. The combined method is referred to in the literature by a variety of terms such as multi-strategy (Bryman, 2006), mixed methods (Creswell, 2013), mixed methodology (Tashakkori & Teddie, 2010), or third wave research (Johnson & Onwuegbuzie, 2004). Regardless of the nomenclature used, the multi-strategy research approach has gained strong support in the field of evaluation research (Tashakkori & Teddie, 2010). Creswell et al. (2003) argue that description as mixed-methods research conveys a sense of the rigor of the research and provides guidance to others about what the researchers intend to do or have done, and clarify the nature of their intentions or of their accomplishments.

For any research to be considered a true mixed methods design there must be legitimate integration of data at one or more stages in the process of research (Andrew & Halcomb, 2011; Tashakkori & Teddie, 2010). This refers to mixing these data; the researcher needs to consider the interconnectivity between all results which might occur at any stage of the research project such as data collection, data analysis or at the end, during discussion of the results. In this study, both quantitative and qualitative data were collected and analyzed separately; the integration took place at the point of the discussion. It should be noted that the results of the first component informed the second component's data collection.

According to Andrew and Halcomb (2011), integration is a pivotal ingredient of mixed methods studies and should take place during the data collection, data analysis and/or data interpretation phases, but it may also take place in the discussion section of a thesis. The decision on when and how to integrate the results depends on the research question, including

how it is formulated and whether secondary questions come up during any stage of the research (Andrew & Halcomb, 2011). It is important for the researcher to specify how the different results inform one another and how they provide distinctive answers to the research questions. In this research project, results from the first study informed data collection of the second study.

The integration of quantitative and qualitative data can dramatically enhance the value of mixed methods research (Bryman, 2006; Creswell., Klassen, Plano, & Smith, 2011). According to (O'Cathain, Murphy, & Nicholl, 2010) there are several advantages to be gained from integrating the two forms of data. The qualitative data can be used to assess the validity of quantitative findings. Quantitative data can also be helpful in making decisions on sampling for the qualitative component of the study. Qualitative inquiry can enable development or refinement of quantitative instruments or interventions, or generate hypotheses for testing in the quantitative component. Creswell. et al. (2011) has shown that the mixing of data could be done in one of three ways- by merging the two data sets, by linking one set to the results of the other, or by embedding. In the latter, one type of data is incorporated into the second type, and the decision to do so should not be at the data level but at the design level. Although data integrating has the potential to contribute positively to a research study, that potential does not appear to be exploited in many mixed methods studies (Bryman, 2006; Lewin, Glenton, & Oxman, 2009).

The health institutional research includes investigation of complex, multilevel processes, and systems that may require both quantitative and qualitative forms of data. Authors point out that mixed methods research studies provides an innovative approach for addressing contemporary issues in health services (Creswell, Fetters, & Ivankova, 2004; Curry et al.,

2013). The nature of the research question drives the choice of methods. Health services researchers use quantitative methodologies to address research questions about causality, generalizability, or magnitude of effects.

Qualitative methodologies are applied to research questions to explore why or how a phenomenon occurs, to develop a theory, or to describe the nature of an individual's experience. According to Johnson and Onwuegbuzie (2004) the mixed methods research process model comprises the following eight distinct steps:

1. Determination the research question
2. Determination whether a mixed design is appropriate
3. Selection of the mixed method or mixed model research design
4. Data collection
5. Analysis of the data
6. Interpretation of the data
7. Legitimatization of the data
8. Drawing conclusions

In an explanatory sequential design, the researcher first collects and analyzes quantitative data, then the findings inform qualitative data collection and analysis (Ivankova, Creswell, & Stick, 2006). For example, Carr (2000) explored the impact of pain on patient outcomes following surgery by conducting an initial questionnaire about anxiety, depression, and pain that was followed by semi-structured interviews to explore these concepts further. Creswell and Plano Clark (2011) conceptualize integration as occurring through linking the methods of data collection and analysis. Linking occurs in several ways: (1) connecting (2) building (3) merging and (4) embedding.

3.4 Sequence and Priority

Weight or priority given to either the quantitative or qualitative form is determined by the researcher, who places either more weight on one set of data or has an equal weight shared between two forms of data (Creswell, 2013). This emphasis may depend on the research question, practical constraints on data collection, or from the need to understand one form of data before proceeding to the next (Molina, 2012). Morgan (1998) supported the idea of assigning a principal method as means of data collection and then designing the secondary method to assist the principal method effectively. Morgan further argued that making the two methods equally important leads directly to a third effort to connect what was learned from each. The knowledge gained from the two methods may be either incommensurate or downright contradictory.

A decision has to be made about whether these data should be collected sequentially and which component should be undertaken first. This study used sequential implementation of the quantitative data collected and analysed in the first stage, followed by qualitative data collected and analysed in the second stage. Conducting the study in this order allowed the researcher to build on the strengths of both quantitative and qualitative data. Quantitative data produce statistical results in the form of numbers and frequencies and offered broad, useful information; meanwhile, qualitative data provided the actual experiences of individuals in their own words, and a richer picture of the situation emerged. In addition, qualitative interviews can define the context, thereby helping to clarify the quantitative statistical relationships and numerical findings (Creswell, 2009). Also, combining quantitative and qualitative methods helps produce comprehensive research outcomes, as well as providing a better prospect of answering research questions (Tashakkori and Teddie, 2010).

3.5 Research Design

According to (Cresswell and Clark, 2007) and (Creswell, 2009), sequential explanatory design is the most used form of mixed method approach, as it is the most straightforward approach compared to other mixed method designs. It is characterised by the use of quantitative data collection and an analysis phase, followed by an in-depth qualitative data collection and analysis phase. The qualitative phase is used to gain a more comprehensive explanation and understanding of the significant issues raised in the quantitative phase. The strength of this design is that it provides an in-depth understanding of unexpected issues or significant differences that result from, and are raised by, investigating the general population of the study, as in the case of this research. The results of the first phase inform the second one, and the main synthesis of the results and findings takes place in the integration phase. Creswell (2014) argued that this approach is applicable to fields dominated by quantitative approaches and methods. This is the design chosen for this study. The following is a further explanation of the research design used in this research.

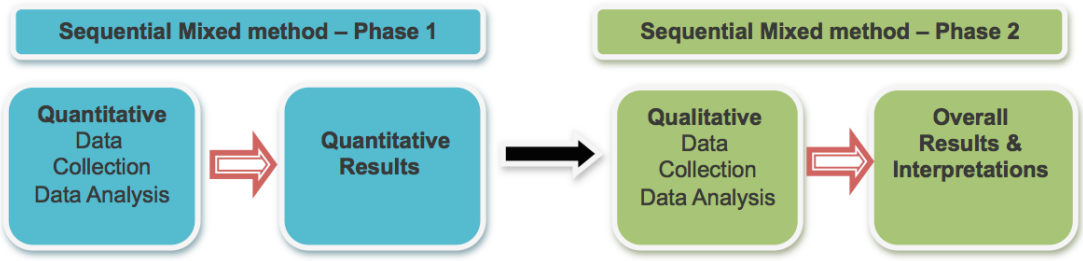


Figure 3.1 The Phases of Sequential Explanatory Design

This design determines the manner in which quantitative and qualitative data are utilized by the researcher. This design is cognizant of the fact that connection of information collected from different sources determines or contributes to the success of the research approach. The

most difficult decision when using the sequence design is the are on which method comes first and which one will be the complementary method. Using two methods in sequence is easier than using them simultaneously.

The essence of using both approaches is to use what is learned from the first approach to synergise what will be deduced by the second approach. Therefore, this requires a researcher to carefully consider which becomes the principal approach and which becomes the follow-up method. This decision must reflect the essence of using two approaches that cover each other's weaknesses in a complementary manner (Bryman, 2006). In the present study, the quantitative aspect was undertaken first see Table 3.1. Considering the research sequence design, the qualitative interviews were considered as follow-up input to enhance the main data gathered from the questionnaires.

Table 3.1 Priority and sequence design of the research

	Phase One (Quantitative)	Phase Two (Qualitative)
Research Priority	Primary	Complementary
Sequence	First	Second
Tool Type	Questionnaire	Semi-Structured Interview
Participants	Patients with non-major limb injury	Orthopedic Nurses

3.6 Strengths and Weaknesses of Mixed research Approaches

The mixed method paradigm has both its strengths and weaknesses. A review of both gives a researcher a plan for how to carry out the research study. The most profound weakness of the research paradigm is when two of the approaches are to be used simultaneously; requires one

to learn multiple methods in order to understand how to go about the research (Greene, 2007). According to Hesse-Biber (2010, p. 15), the mixed method paradigm is time-consuming and some of the details including how to interpret data conflicting results and qualitatively analyze quantitative data are fully to be worked. However, in spite of the stated problems the paradigm was considered suitable for the research because it adds insight and understanding for the research question that might have been missed if a single method was utilized. The fact that the sequential design has two phases is a positive because the results developed in phase one were used to inform the design and purpose of phase two as a component of research. The complementary aspect of the paradigm also played the role strength because the weaknesses of either method were overcome through the use of both methods, qualitative and quantitative. Johnson and Onwuegbuzie (2004, p. 21) investigated some of the strengths and weaknesses of mixed methods research (see Table 3.2), which should aid in the decision to use or not use mixed methods research approach for a given research study.

Table 3.2 Strengths and weaknesses of mixed methods

Strengths	Weaknesses
• Words and narrative can be used to add meaning to number, and number can also be used to add precision to words and narrative • Can provide stronger evidence for a conclusion through convergence and corroboration of findings. • Can add insights and understanding that might be missed when only a single method is used. • Can be used to increase the generalizability of the results • Mixed methods research produce more complete knowledge necessary to inform theory and practice.	• Can be difficult for a single researcher to carry out both quantitative and qualitative research. • Researcher has to learn about multiple methods and approaches and understand how to mix them appropriately. • More expensive, more time consuming

3.7 Research Setting

The study was conducted in Orthopaedic Outpatients Clinics and EDs in a number of Saudi Arabian hospitals. These hospitals are considered flagship facilities in the Middle East region. Some of these hospitals have the biggest trauma care centres with good reputations in their orthopaedic services department, providing primary and tertiary healthcare services to their patients. They also have many hospital branches in other regions in KSA (Central, Eastern, Western, North SA), with distinguished healthcare provider recognition status. Collecting data from hospitals in different provinces was considered likely to provide varied information about discharge planning and attitudes to injury, particularly if the study hospitals represented different affiliations and variety in treatment modes, All the invited hospitals accepted to participate in this research except the Riyadh Military Hospital RMH due to political issues by Ministry of Interior and Public Security (MIPS) have to reform ethical committee in this Military Hospital. Therefore they declined all applications until further notice. A brief overview of the participating hospitals is as follows.

3.7.1 King Abdulaziz Medical City

King Abdul Aziz Medical City (KAMC) in Riyadh, also known as National Guard Hospital, commenced its operations in May 1983 and provides comprehensive health care and specialist treatment services for National Guard personnel and their eligible dependants. It has an additional centre that provides services for private patients. The hospital has 1600 beds in addition to 163 beds allocated for expected surgical operations and 132 beds for emergency cases (King Abdulaziz Medical City, 2012). Nursing Services at King Abdul Aziz Medical City encompasses approximately 3,900 nursing and non-nursing positions employing personnel from over 45 different nationalities across the globe. King Abdul Aziz Medical City has an established College of Medicine and the College of Nursing and Allied

Medical Sciences founded in 2004, to provide healthcare education for future generations. The Emergency Care Centre at KAMC is considered to be the best Trauma Care Centre in the Kingdom of SA. It is ranked as the 4th Emergency Care Centre outside the US, to provide pre hospital Trauma and life support program (King Abdulaziz Medical City, 2012).

3.7.2 King Fahad Medical City

The second hospital was King Fahad Medical City (KFMC) located in Riyadh. KFMC is a healthcare complex under the supervision of the Ministry of Health and is one of the largest healthcare facilities in Saudi Arabia; it formally opened in October 2004, and has a bed capacity of 1459. The hospital provides a comprehensive range of inpatient and outpatient care, including orthopaedic department and plaster cast room, a specialist women's hospital, children's hospital, the 132-bed Prince Sultan Haematology and Oncology Centre, and the 42-bed Prince Salman Heart Centre. KFMC is also a teaching hospital and has an established Faculty of Medicine to enable further advancement in the teaching of medicine (King Fahad Medical City, 2012).

3.7.3 King Saud Medical City

The third participating hospital was King Saud Medical City (KSMC) also known by different names at different times. Initially, it was Riyadh Medical Centre, later as Riyadh Central Hospital; most people refer to the hospital as Shumaysee hospital. It opened October 1956, under the supervision of the Ministry of Health, and it is the oldest hospital in SA. It is a tertiary care centre for medicine and surgery especially spinal and neurosurgery. It is also an internationally recognized centre for training in medicine and surgery. It has 1500 beds. KSMC's ER department is one of the busiest in the country with a variety of accident and emergency cases pouring in who are triaged and then referred to particular specialties, and it is also well-known in managing complex orthopaedic cases (King Saud Medical City, 2012).

3.7.4 King Khalid Hospital in Hail

The fourth participating hospital was King Khalid General Hospital (KKH) in Hail province (North territory). The private sector does not play an important role in the Hail region and is restricted entirely to the main city. This hospital is a tertiary care hospital, providing all health services, with a capacity of 500 beds. The hospital provides health care services to all patients from Hail City and rural and remote areas in Hail province free of charge for Saudi and non-Saudi residents. This hospital is operated by the Ministry of Health in conjunction with a corporate health care contractor. It also provides clinical experience and training to medical and nursing students (Ministry of Health, 2013).

3.8 Ethical Considerations

The research was based on ethically sound foundations for all aspects of the study and complies with the Australian National Statement on Ethical Conduct in Research Involving Humans. Prior to the commencement of the study, ethics approval for the project was sought and obtained from the Monash University Standing Committee of Ethics Research in Humans (SCERH) on December 12, 2012 (reference number CF12/2629 – 2012001427.) Refer to Appendix A for approval and from the Administration and Research Committee at the participating hospitals, and Appendix B for participating hospitals such as KAMC and MOH hospitals approval; this including the approval of the data collecting methodology. There were no major ethical issues raised by MUHREC, but some clarifications were requested.

Ethical issues arising during and after the research were resolved through the Monash University guidelines. This was to maintain participant confidentiality of information supplied by the participants and to put the participants at ease by confirming that the

information is to be used for research purposes only. The requirements for confidentiality, anonymity, protection from discomfort and the human rights of the participants were recognized to ensure reliability of the results. Accuracy of data was ensured through avoiding fabrication of data, omission, and contrivances as it is considered to be one of the fundamental principles of research in the social sciences (Creswell, 2009).

3.8.1 Anonymity and protection of human rights

Ethical affairs always take priority when conducting research, particularly where the research deals with human participants' experience, such as patients and nurses in this study. Therefore, an evaluation of the risks and benefits of a study of discharge planning and limb injury was crucial before seeking ethical approval to embark on the study. Polit and Beck (2004, p. 146) point out that "in designing a study, the researcher must carefully assess the risks and benefits that may be incurred".

No names or any identifying information was available on the questionnaire or other accompanying document. Care was taken to ensure that the questions would not identify the participants and responses could not be linked to individual participants or location, affiliated, organisation and other relevant information that was traceable to the participant. Interviews were conducted in the premises of the four selected hospitals and each completed questionnaire was identified by numerical code only to ensure confidentiality, and to maintain the anonymity of the participants.

The researcher is a qualified orthopaedic nurse in SA and acknowledged that the questionnaire was likely to cause minor distress to some of the participants and this was

communicated to all the participants and they were offered the option to withdraw from the study at any time.

To ensure confidentiality and security of the data, they were kept secure in a safe place in the custody of the researcher. Transported by air as the researcher's cabin baggage, and handed to the Administrative Head of the School of Nursing and midwifery at Monash University. According to Monash University regulations, data are stored securely for five years, after which time it is discarded (Monsh University, 2014). Only the researcher and the researcher's supervisors have access to the data during that time.

Since no information identifying the participants was publicly reported, consent was not required. The return of the completed questionnaires by the participants was considered as implied consent (Polit & Beck, 2004). Participants were not coerced in any way to participate in this study. In addition, there was no unequal relationship between researchers and participants that may have affected the latter in any way.

3.8.2 Considerations and right of participants

Researcher should strive to minimize harm and maximize benefits. Ideally, both the individual and the society as a whole should be beneficiaries of research and therefore, research should be optimized towards that end (Fetters, Curry, & Creswell, 2013). Participants in a research project are fundamentally important in that they provide the impetus to achieve socially and scientifically useful objectives that could not have been otherwise realized (Beck & Polit, 2013). Therefore, the researchers are obliged to protect participants' rights and take steps to protect them from discomfort or possible harm.

The participants in any research have the right to anonymity and this should be explained in the questionnaire and the interview invitation. In the present study the invitation contains an explanatory statement that described the reason or aims for the research and assured participants of the right to self-determination of disclosure. The statement ensured the principle of self-determination by stressing that the respondents had the right to decide voluntarily to participate or not and they had the right to withdraw unconditionally at any time without the risk of incurring consequences. Moreover, they had the right to ask questions or clarifications of any point.

Full disclosure means that the researcher has fully described the nature of the study and has avoided any biases in the research. These biases are firstly, biases resulting from inaccurate data and secondly, bias resulting from sample recruitment problems (Beck & Polit, 2013). Self-determination also includes freedom from coercion of any type; coercion involves explicit or implicit threats of penalties for not participating in the study or excessive rewards for agreeing to participate in the research study. In regard to these issues, there was no influence over the participants as they had made the choice to volunteer to participate and no money or rewards were offered.

The researcher should also be aware that the harm cannot only be direct but indirect too, the latter mostly arising out of the feelings of the participants having allowed an intrusion into their private or personal domains; normally it is quite a delicate matter to avoid such an instance and this where the researcher's skill is essential (Walford, 2005). Lastly, a researcher should be cognizant of the fact that participants have legal or contractual rights and interests in recordings, publications, and data. However, these rights vary depending on the agreements and legal jurisdictions. It is the obligation of the researcher to inform the

participant of their rights pertaining to data protection laws or copyright laws of the region or state where the research is taking place (Walford, 2005).

3.9 Phase One: Quantitative Data Collection

In this section, an overview of quantitative data collection strategies used in this study, sampling, inclusion and exclusion, and questionnaire will be illustrated. This is followed by in detail discussion of the data cleaning, analysis, and procedures.

3.9.1 Sampling

Sampling is the process of selecting a group of the patients with non-major limb injury to represent the entire population of the same category presented to outpatients' orthopaedic clinic and ED in Saudi Arabian hospitals. A sample's representativeness is a key criterion of adequacy (Beck & Polit, 2013). While agreeing that this type of sample does not represent the total population, it provides the relevant and useful information required to answer the study question. Creswell (2013) suggested that there is no simple formula to determine how large a sample is needed in any research; however, a small number of participants may make it difficult for the researcher to support their study.

It was very difficult to recruit participants; however, the student researcher attended the clinic every day and supported staff and participants in their questions about the study. The sample for the quantitative design was a convenience sample of 302 patients who met the research criteria of those who visited the military, private and public hospitals. Convenience sampling entails recruiting a sufficient number of most conveniently available and eligible people as study participants. The use of a convenience sample was to enhance generalizability and transferability of the study findings (Tashakkori & Teddie, 2010). In addition, by using this

sampling technique the researcher was able to recruit patients who had an injury and came to the orthopaedic outpatients clinic for a follow-up visit. Moreover, convenience sampling enabled the researcher to recruit a relatively large sample in a short time frame. Convenience sampling also has the advantages of being relatively inexpensive, accessible and usually less time-consuming than other sampling methods (Haber, 2006).

3.9.2 Inclusion and exclusion criteria

Participation in the study was based on several inclusion and exclusion criteria. The inclusion criteria used in the quantitative phase included adult (18 years old or more), both male and female, Saudi and expatriate patients who had non-major limb injury, treated in ED or inpatients ward, who regularly came for a follow-up at the respective outpatients orthopaedic clinics of the above stated hospitals for follow up. Those with hip or knee replacement, injury to the viscera, the skull, spine, chest, pelvis, crush injury are excluded, because this injuries are disabling; thus are not classified in this study. The inclusion criteria for the Phase two qualitative phase are orthopaedic nurses and plaster cast nurse technicians who worked in outpatients orthopaedic clinic, and ED in participating hospitals.

3.9.3 Questionnaire

Designing a questionnaire is very similar to designing an experiment, and must match the objectives so that the questionnaire data and analysis answer the questions the researchers are posing. As with any experimental method, questionnaire designs can range from simple to complex, and the researcher needs to select a design to provide the most effective means of obtaining the information needed to address the researcher's objectives (Kitchenham & Pfleeger, 2002). Kitchenham and Pfleeger suggested that three elements need to be

considered when designing a questionnaire, being resilient to bias, appropriateness, and cost effectiveness.

Questionnaire is also one of many research tools available for researchers and it can be used profitably in the examination of many topics and can be especially effective when combined with other methods. A questionnaire was used to collect data, through self-reporting, about an identified and specific population, attitudes, characteristics and phenomena of interest (Borbasi, Hengstberger, & Jackson, 2007; Moule & Goodman, 2013). Questionnaires are very useful because they allow the collection of data from a larger number of people than generally possible when using other methods, such as experimental methods. However, aquestionnaire relies on individuals' self-report of their knowledge, attitudes or behaviour. Thus, the validity of the information is contingent on the honesty of the respondent (Bryman, 2006).

Questionnaires have been rated highly as research tools due to their versatility and flexibility in terms of structure, format, and means of administration, and are considered to be a major method of data collection (Tashakkori & Teddie, 2010). They are also advantageous in terms of the cost of their administration, particularly in time taken to collect data, compared with other types of data collection such as interviews (Elliott, 2007). By using questionnaires, data can be collected from large numbers of participants simultaneously (Brink & Wood, 2001). With a questionnaire, participants are more likely to feel confident of maintaining their anonymity and thus may be more likely to express their opinions freely, even if the comments were controversial. The researcher does not have to be present when the questionnaires are being answered to assure that no bias may occur. It is less time consuming for participants with most occasions taking only 15 to 20 minutes to be completed. However,

a questionnaire can gather accurate information only to the extent that the items are correctly understood and respondents are truthful and provide the requested information accurately. Questionnaires, conversely, are prone to a low response rate, especially if delivered by mail. Therefore, the questionnaires of this study were hand-delivered by the researcher to each of the orthopaedic outpatients clinic and ED of the participating hospitals (Elliott, 2007). Due to the growing use of technologies in research and the ease and efficiency of delivering and analysing questionnaires using computers and software, the popularity of the questionnaire as the preferred mode of data collection has grown tremendously in recent years (Sharp et al., 2012).

The questionnaire consisted of four parts. The first part of the questionnaire deals with socio-demographic data gathered through close-ended questions. The questions in the second part were designed to cover the pattern of the injury and treatments at ED or home environments using a five point rating score; this part was used to determine discharge process and unplanned returnee to ED. The third part utilized the SF-36 instrument and it is also consists of closed-ended items using a five point rating scale. This part was designed to discuss the self-care ability, psychological stress, and overall health. Lastly, in Part Four, open-ended questions were designed to enable the respondents to express themselves in their own words in order to identify alternative responses. The questions were sequentially numbered through the questionnaire in order to make it easier for the participants to follow as they completed each part of the questionnaire. An overview of the questionnaire used in this study is given below.

Part One: Socio-Demographics

The first part of the questionnaire referred to socio-demographical variables (independent variables). Close-ended questionnaires were used to identify the socio-demographic background of respondents (refer to Appendix E). This included age, gender, nationality, level of education, cause of injury, medical management, location of injury, living status, employment status, and any other medical problem. In Part One, demographic descriptive items were structured to identify the relationship between elements of discharge preparation, clarity of instructions, type and source of instruction. This provides data on the differences between instructions delivered, and returning and non-returning patients to ED in regard to discharge protocol, psychological stress, and overall health.

Part Two: Pattern of treatments

In Part Two of the questionnaire there were statements enquiring about the patterns of treatments, selected from a wide range available in the literature. The framing of the questions in this was designed to collect information relating to, or describing, the methods of treatment, across the demographic variables. The questions also sought to collect information relating to sources of instruction, the type of instructions, patients who returned or who did not return to ED due to injury, and the medical management by both patients and health practitioners. This part consisted of thirteen Likert scales and related to discharge preparations, clarity of instructions, and psychological distress statements, each has a five points score rate as follows:

1) Very poor
2) Poor
3) Average
4) Good
5) Very good

Part Three: SF-36 Instrument

The SF-36 instrument consists of twenty-two statements with Likert scale measurement relevant to self-care ability, psychological distress and overall care. In Part One of the SF-36 instrument, participants were requested to rate the given statements from "no difficulty" to "unable to do" using a five point rating scale. In Part Two, participants were requested to rate their psychological distress using a five point rating scale from "all the time" to "none of the time." Lastly, a single statement to assess their overall health was provided, and participants requested to rate on a five point scale ranging from poor to excellent.

The health outcomes questionnaire or short form SF-36 was constructed in 1992 to measure overall health status in physical, psychological, and overall function (Ware, 2000). The SF-36 is becoming well known as the standard assessment of health used by physical therapists in the clinical setting. This instrument was created as a comprehensive assessment of general health, containing questions on functional status, emotional and social well-being, and overall evaluation of health, and has been translated into eleven other languages (Hart, 2012). However, the researcher for the first time translated it to the Arabic language.

The SF-36 as a whole demonstrates high internal consistency 0.85 and test retest reliability with values ranging from 0.63 to 0.81 in studies that contained people of a broad age range with varying medical conditions (Martin et al., 2011). In addition, reliability has been shown to usually exceed 0.90 across different age and population groups. Validity of the SF-36 including construct, content, criterion, and predictive validity, has been comprehensively established across many patient populations (Hart, 2012; Martin et al., 2011; Ware, 2000). The advantage of the SF-36 over other general health measures is that it is designed for self-administration, telephone administration, or administration during a personal interview, and has demonstrated success under each method of those methods of implementation (Hart,

2012). More importantly, this instrument is considered to be concise cost effective.

Part Four: Open-Ended Questions

Qualitative elements were added at the end of the questionnaire and contained two open-ended questions and a space for general comments. Open-ended questions were used to allow participants to comment in their own words about their experience with the discharge planning process, so as to uncover alternative responses (Whittemore & Grey, 2006). The questions were designed, as Elliot and Hayes (2003) emphasize, to be concise and clear, free of jargon and grammatically correct. For the current research? They were checked by a panel of experts, the researcher's supervisor and tested and practised with the researcher's friends repeatedly.

3.9.4 Reliability of questionnaire

In the quantitative phase, reliability is a measure of the stability, internal consistency and equivalence of the measurement. Bryman (2006) defines reliability as a measure that maximizes the true score component and minimizes the error component of an obtained score, thus reflecting the accuracy and quality of data. A reliable tool or data should provide the same scores on each occasion when used on the same participants. Stability assessment can be derived through test-retest procedures. This means the researcher uses the same measurement on the sample on two occasions followed by comparison of scores (Polit & Beck, 2006).

Cronbach's alpha test is one of the most widely used statistics to measure internal consistency (Beck & Polit, 2013). The high internal consistency of SF-36 using this statistic has been established and documented (Martin et al., 2011; Ware, 2000; Yarlas et al., 2011).

Nonetheless, the researcher performed an independent test on the questionnaires designed for the current study. Depending on the purpose of the scale, Pallant (2010) recommends a minimum level of 0.7 as an acceptable value. Results are shown in Table 3.2.

Table 3.3 Reliability statistics of the questionnaire

Instrument	Number of Items	Cronbach's Alpha
SF-36	22	0.89
All questionnaire	48	0.76

3.9.5 Validity of questionnaire

In addition to instruments being reliable (with the ability to obtain the same result when the questionnaire is repeated) they must be valid. Validity is a measure of the accuracy of a measuring questionnaire. It indicates whether the questionnaire measures what it claims to measure (Jackson, 2011; Myers, Well, & Lorch, 2010). It is the most fundamental consideration in instrument development, and refers to the degree to which current evidence and theory supports the performance of the instrument (Elliot & Hayes, 2003). The main types of validity are content, criterion and construct validity (Pallant, 2010). Hart (2012) and Ware (2000) established evidence for the criterion and construct validity for the SF-36. If researchers use an existing questionnaire, validated in previous research measuring the same phenomenon, the tool can be present as pre-validated (Moule & Goodman, 2013).

Prior to the distribution of the questionnaire to the participants, it was pre-tested using a number of patients (n=8) with limb injury at one of the participating hospitals. They were asked to respond to the questionnaires and to write their comments and suggestions. The rationale for pre-testing the questionnaire with a cross-section of patients was to determine whether the questions were accessible and clear to understand (Creswell 2011). In addition the researcher experience acquired through working with limb injury in orthopaedic

departments was also useful in designing the questionnaire. The feedback suggested certain changes to rating formats and font of letters and these changes was incorporated in the final questionnaire.

Validity in the quantitative phase also included the translation of the questionnaire, and the explanatory statements and research invitation letter from English to Arabic, as some of the participants are not fluent in English (refer to Appendix C). Therefore, an international translator with accreditation was specially recruited for the task to ensure that the language used matched the English version and differentiated between formal and colloquial words. The researcher compared the translation that he prepared himself and the translation by the specialist translator to compare the two questionnaires in order to identify any significant differences in the questionnaires. The translated questionnaires were found to be accurate and clear. According to Maneesriwongul and Dixon (2004) there is no single perfect translation technique, therefore multiple techniques should be used in all cross-cultural research (Almutairi, Gardner, & McCarthy, 2013).

3.9.6 Data collection procedures

After gaining ethics approval and permissions from each hospital's Institutional Review Board (IRB) to engage in the study, the researcher met the orthopaedic supervisor in the outpatient department to explain the study and to invite participation. The researcher also had meetings with potential participants at the orthopaedic clinics of each of the participating hospitals to explain the study's purpose, its significance, why they had been chosen as potential participants, and the benefits they may expect from the findings. Then an invitation to patients to participate was extended by placing information posters on notice boards at the orthopaedic outpatient clinic waiting areas. The criteria and requirements were included in

the invitation letter (refer to Appendix D). In addition the researcher verbally invited those who showed an interest to participate. An explanatory statement and a questionnaire were also provided besides the invitation to the participants in the waiting area (Arabic Translation Appendix D) and they were given the opportunity to complete the questionnaire anonymously and return it securely and privately.

In the interest of the convenience of the respondents and increase the response rate, the participants were requested to return the completed questionnaire to a secure box placed in the orthopedic outpatient department in the waiting area in each of the participating hospital. The boxes were locked and secured to ensure the security of the questionnaires. The starting date for data collection was 15 April 2013 and the deadline for returning the questionnaires was 15 August 2013. The boxes containing the questionnaires were collected by the researcher on 19 August 2013.

A number of obstacles were met while seeking ethical approval at some of the invited hospitals in Saudi Arabia. These obstacles included: lack of formal channels to submit the research ethical approval application forms; delays in handling the applications for ethical approval due to departmental politics (four months were required for the approval process at one of the Saudi Arabian hospitals, in spite of satisfying the requirements in submitting all official documents); lack of support from nurses to invited participants due to lack of time; and most importantly, the data collection was in the summer period in SA, and the temperature on occasional days would rise to between 47 to 52 Celsius at noon, causing great discomfort.

3.9.7 Statistical analysis

Descriptive statistics such as frequency distributions, means, standard deviations of means, regression and correlation between variable were generated wherever it was appropriate. The main analysis involved the use of Chi square analysis when determining the relationship between two categorical variables. In instances where the predictor variables were categorical and the outcome variables were continuous, either an independent sample t-test or an analysis of variance (ANOVA) was accordingly used. When the predictor variable had only two categories (dichotomous), the t-test was employed. When the predictor variable had more than two categories, ANOVA was used. IBM-SPSS version 20 was used for all the analyses.

3.9.8 Data cleaning

The first step in data processing is verifying if the data are correct through data cleaning, and its main objective is to prevent errors. Data cleaning was used in the quantitative phase of the questionnaires, Part 1-3. In Part 1, there were 15 items (questions) divided into categories and ranked variables. In Part 2, there were 11 and in Part 3, there were 22 items on a five point scale. In order to prevent data error in this research, the following procedures were followed:

- The data were entered into an SPSS spreadsheet with second researcher assistance to avoid errors.
- The frequencies for each item for both independent and independent variables were determined
- The sample size was checked in each table to make sure that did not exceed 302 respondents.
- The frequency of each category for categorical, rank and interval variables was rechecked.

3.9.9 Missing data

Possibility of missing data is one of the most frequent weaknesses of the questionnaire tool (Tashakkori & Teddlie, 2003). Missing data in a research study is when there is missing information of variables for one or more respondents. Preventing missing data happening is the preferred and satisfactory approach to addressing missing data (Fleming, 2011). However, the systematic missing data may influence the generalizability, making the findings limited and reducing integrity and interpretability of the results (Fleming, 2011). To meaningfully reduce the missing data, the researcher consulted with a Monash University expert panel and statistical experts to recognize and address factors that commonly lead to missing data. After data analysis, missing data were evaluated for patterns and disruption and were replaced with th group mean value if they had no influence in the generalizability of the findings. The missing data which had the possibility of impacting on generalizability and reducing the integrity and interpretability of results were trimmed from the data analysis.

3.10 Phase Two: Qualitative Data Collection

Qualitative data collection might scene in a different forms and methods, and many qualitative studies are frequently linked to one of the research types or traditions: for example, ethnography, phenomenology, and grounded theory, and many others claim no particular methodology. The researcher may simply indicate a qualitative study or a naturalistic inquiry was conducted (Beck & Polit, 2013). Sandelowski (2000, p. 334) suggested that the "increasing complexity of qualitative methods and the tyranny of method in nursing research that makes the rediscovery of qualitative description necessary''. In contrast to other research traditions, in qualitative descriptive studies, descriptions of facts are presented in simple layman's language.

According to Sandelowski (2000), qualitative descriptive studies offer a comprehensive summary of events, and researchers stay closer to their data and to the surface of words and events than researchers conducting grounded theory, ethnographic, phenomenological or narrative studies. In the present study the researcher conducted a descriptive qualitative design and no particular disciplinary or methodological root was required to guide the study (Beck & Polit, 2013). Data were collected using semi-structured interviews and aimed to understand and explore the orthopaedic nurses' experience and perceptions of discharge planning from hospital to home. In addition, collecting qualitative data was used to gain an appreciation of participants' perceptions of injuries and attitude toward discharge process and to understand the different viewpoints of participants in different hospitals.

3.10.1 Sampling

The sampling for the qualitative phase was purposive. Purposive sampling is where the researcher identifies a subset of people to be the interviewed, making a judgment on who will be able to provide the desired information (Beck & Polit, 2013). Purposive sampling aims to provide an information-rich situation for in-depth study (Schneider, 2003). Semi-structured interviews were conducted with a sample of ten orthopaedic nurses in an outpatient clinic meeting room. The sample was chosen in such a way that both male and female, as well as both Saudi and expatriate nurses, were represented. Participation was voluntary, and interviewees were selected from those who responded to invitation letters, or notices displayed on notice boards in staff rooms in ED, inpatient and outpatients clinics (Appendix D). Participants had the study explained to them in detail, and were offered the opportunity to withdraw their participation at any time.

3.10.2 The interview

Interviews comprise one of the most familiar strategies for collecting qualitative data.

Tashakkori and Teddie (2010, p. 671) described interviews as good conversations that emphasize a particular context that other persons know, and that leads to meaningful interaction about that context between the interviewer and interviewees. In a qualitative research interview, the aim is to discover the interviewee's own framework of meanings, and the researcher's task is to avoid imposing his/ her own structures and assumptions as far as possible. The researcher needs to remain open to the possibility that the concepts and variables that emerge may be very different from those that might have been predicted at the outset (Britten, 1995). Moreover, interviews also offer the researcher the greatest amount of flexibility in asking questions and far more latitude in interpreting the response (Jackson, 2011).

There are several types of interviews can be used, based on the purpose and the type of questions asked at the interview. However, the most common method used by phenomenologists is the unstructured or semi-structured interview (Beck & Polit, 2013; Tashakkori & Teddie, 2010). Balls (2008) points out that the unstructured interview may be the gold standard in phenomenological research, with advanced listening skills guided by the principles of understanding. Open-ended interviews are the most frequently used data collection strategy and have become the most widely used method to elicit the viewpoint of participants for qualitative analysis (Balls, 2008; Beck & Polit, 2013). In this study, semi-structured interviews were conducted and the researcher ensured that a specific set of topics was covered. The researcher prepared in advance with a written topic guide, which is a list of questions to be covered.

However, the success of an interview based on data collection process depends on the interviewing skills of the interviewer in matters such as how directive he/she is being,

whether leading questions are being asked, whether cues are picked up or ignored, and whether interviewees are given enough time to explain what they mean. Therefore qualitative interviews require considerable skill on the part of the interviewer. Indeed the researcher in the present study is an experienced orthopaedic nurse and possesses some experience as an interviewer, and therefore is equipped with the necessary skills

The researcher developed in advance an interview guide, based on information obtained from the literature and from Phase One of the study, a protocol for the transcription of data, number of interviews, and a coding system for identification of participants. The interviews were arranged to take place at a place and time by mutual agreement between the researcher and the participant. The place in all instances was a quiet area in the outpatient meeting room and plaster room clinic of each of the participating hospitals. Interviews were conducted in English with expatriate nurses and four Saudi nurses fluent in English, and Arabic with three Saudi nurses. The interview began with the interviewer thanking the interviewee for agreeing to participate, followed by general introduction, it was emphasized that participation was voluntary, and participants could leave at any time, and they were also informed that the session was being audio recorded. This was followed by an explanation of the maintenance of anonymity and confidentiality, data analysis and the purpose of the interview. Being semi-structured by definition, the interview were conducted on the basis of a loose structure consisting of open ended questions that define systematic discharge planning to be explored, at least initially, and from which the interviewer or interviewee may diverge in order to pursue an idea in more detail. Continuing with the same example, interviewees might initially be asked a series of questions such as: "What in your opinion is a good discharge planning?", "How do you know the discharge is comprehensive?", and so on. While conducting the interview, important responses and comments for each question were noted in order to

facilitate precise data interpretation. This added to the validity when conducting the data analysis. At the conclusion of the questions, participants were thanked for their participation again and offered the opportunity to ask questions if they had any.

3.10.3 Interview data interpretation

Hoskins and Mariano (2004) explain that there are many guidelines for qualitative data analysis, though the analytical methods used will be based on the skills, insight, analytical abilities and the style of the investigator. In addition they comment that "Categorical/analytic schemes or concepts can be developed directly from the data, built upon the researcher's prior research, or borrowed from the existing literature to organise and classify the data" (Hoskins & Mariano, 2004, p. 65).

The interviews were analysed using content analysis, which is similar to thematic analysis, but pays greater attention to the qualitative aspects of the material analysed (Joffe & Yardley, 2004). Braun and Clarke (2006) defined thematic analysis as 'a method for identifying, analysing and reporting patterns (themes) within data' (p. 80). In thematic analysis, there is no imperative to create theory grounded in the data; each identified theme can stand alone and the researcher is not required to establish how themes link together (Creswell. 2013). In the comprehensive review and interpretation of the data analysis (content analyses), the conclusions were formed with a focus on common experiences and perceptions of the group of participants.

NVivo 10 qualitative analysis software was used to provide an organized workspace during the coding process, and patterns from the data, providing a simplified means of classification, sorting and arranging of information, and tracking the frequency of occurrences across the interview data. From the constant comparing of elements and categories throughout the

analysis, several overarching categories were developed. These categories represent the perceptions of the group as a whole and are therefore presented as the conclusions of the study, according to the associated research question topic of discharge planning or fatalism.

All interviews were audio-taped and transcribed verbatim by the researcher. Each tape was listened to at least twice, once before the audiotaped transcription and then later on to check the agreement between the typed text and the transcribed. The transcript of each interview was read and re-read in order to gain an understanding of the whole situation and then re-read slowly to determine its significant features. Transcribing the data word by word is a critical step in preparing for accurate data analysis. By doing this, the researcher ensures the reflection of the interviewee's knowledge. "Researchers should begin the process of analysing the data with the best-possible quality data and this requires careful training of transcribers, ongoing feedback and continuous efforts to verify accuracy" (Beck & Polit, 2013, p. 573). When the researcher starts the transcription of the data, they need to use a symbol to indicate interviewer and participants, for example "Inte" for interviewee and "A, B, C, D" for participants.

In analytical procedures, data management typically involves converting large data sets to smaller masses of data. This method in qualitative research is reductionist in nature, whereas putting segments together into a meaningful conceptual pattern is known as constructionist (Beck & Polit, 2013). In the present research, qualitative content analysis was conducted based on Braun and Clark's (2006) six phases of content analysis as follows:

1. Familiarization with the data. This includes transcribing and reading and re-reading the data. In this phase initial ideas were noted.
2. Generating initial codes based on a systemic method across the entire data set. In addition, this involves collecting data relevant to each code.

3. Searching for themes by collecting codes and linking them to their relevant themes.
4. Reviewing themes through checking if themes work in relation to the codes and further refinement is initiated.
5. Defining. This process was commenced in order to "define and refine themes" and decide what each theme has captured
6. Producing the report. This phase includes the final step in writing up the content analysis linked to the literature and the research questions.

3.10.4 Rigour and trustworthiness of qualitative data

According to Creswell (2009), it is the responsibility of the researcher to make sure that every respondent understands a given question in the same way and that answers can be coded without the possibility of doubt. This was achieved through implementing the following:

- Pre-testing of interview schedules.
- Training interviews and practicing interviews.
- Tape-recording all face-to-face interviews.
- Carefully transcribing these tapes according to the needs of reliable analysis.

Validity in qualitative research is assessed in regard to the description and explanation and whether or not the explanation fits the descriptions. In qualitative research, valid interviews can extract useful outcomes from the study (Braun & Clarke, 2006). The semi-structured interview questions (Appendix E) were designed in the English language first then translated into Arabic by the international translator with accreditation and rechecked by the researcher who is conversant in both those languages.

3.11 Conclusion

Mixed methods research studies draw upon the strengths of both quantitative and qualitative approaches and constitute an innovative approach for addressing contemporary issues in

health services. In this study the first phase of the research data was the quantitative phase for patients with non-major limb injury followed by second phase of semi-structured interviews for orthopedic nurses at the same participating hospitals. The chapter included an in depth discussion on the strengths and weaknesses of mixed method research and the rationale for its use in the present study. The research setting and the ethical considerations were illustrated.

In Phase One, the quantitative research design was divided into four parts: socio-demographics, pattern of treatment and discharge process, coping and psychological distress, using the SF-36 instrument, and finally open-ended questions in which the participants were asked to discuss their experiences with discharge planning. In Phase Two, qualitative research approaches were used in semi-structured interviews. This qualitative data was then used to interpret the statistical data of the quantitative phase as well as to explore further new knowledge. This provided a rich explanation and information on the quantitative questions. The next chapter reports the results of the quantitative and is divided into six parts.

CHAPTER FOUR: QUANTITATIVE RESULTS

4.1 Introduction

This chapter presents the results of the quantitative data collection described in the methodology chapter. It begins with a brief review of research purposes and hypotheses, than it describe socio demographic result and the response rates. It also addresses the self-care ability, psychological distress, overall health and unplanned ED returns as the main variables, with the predictor variables, discharge preparation rating and clarity of instructions. It then reports the effects on type of instructions and sources of instructions on discharge preparation ratings, and examines the demographic differences between respondents who had, and did not have, unplanned return to ED. Lastly, it examines injured body part differences in the outcome variables.

As described in Chapter One and Two, patients whose care is planned and delivered systematically with evidence based discharge instructions will achieve better clinical outcomes, including greater self -care ability, ambulation, lower psychological distress, and reduced returning rates or frequencies to emergency. To re-capitulate, in this study, there were three hypotheses. First, that discharge process and services management are not currently in place to provide effective support for the majority of patients with limb injury. It was also hypothesised that there would be a strong relationship between demographic differences and outcome variables, in addition to the differences between returning and non-returning patients to ED. Hypotheses of the study and predictor variables were tested using

- Bivariate correlation analysis to address the main outcome variables (self-care ability, psychological distress, overall health, unplanned ED return) and predictor variable (discharge preparation ratings and clarity of instructions)

- Two way analysis of variance (ANOVA) to determine the direct and interaction effects of type of instruction and source of instruction on discharge preparation ratings, clarity of instruction, self-care ability, psychological distress, and overall health.
- Logistic regression analysis was used to address the question whether the outcome variable (discharge preparation ratings, clarity of instructions, self-care ability, psychological distress, and overall health) predict unplanned return to ED.
- Chi square (x2) analysis was used to examine the demographic and differences between returnees and non-returnees to ED.

4.2 Response Rate

The questionnaires were distributed to outpatient clinics at four hospitals in Riyadh and Hail cities in Saudi Arabia. The total number of questionnaires distributed was 550 and returned were 302 (*n*=302) giving a total response rate of nearly 55% of the total distributed, which is an acceptable response rate. Gillham (2000) explains that the sample size in quantitative research, as a rule of thumb, is for a 30 per cent return to be as seen as fairly satisfactory, and more than 50 precent is good. This response rate is considered as relatively high and was due to the close follow-up by the researchers and the emphasis of the importance of this study. The participating hospitals, the number of distributed and returned questionnaires and the response rates are reported in Table 4.1

Table 4.1 Demographic Properties of the Participants

Health sectors	No distributed	Hospitals	No returned	%
Military	150	KAMC King Abdulaziz Mdical City	99	66%
Public and private	150	KFMC King Fahad Medical City	97	64%
Public	150	KSMC King Saudi Medical City	67	44%
Public,North region	100	KKGH King Khalid General Hospital	39	39%
Total	550		302	
Questionnaires		550 were distributed and 302 returned were returned		
Returned percentage		Overall 55%		

4.3 Respondent Characteristics

A series of analyses using descriptive? were used to identify differences between participants with limb injury by demographic characteristics. For the purpose of this study and where significant statistical differences were found, the following demographic characteristics were examined: gender by educational level, nationality, and employment status. Finally, living set up, thencauses of limb injury are described.

4.3.1 Description of participants

As discussed in the previous chapter, items were designed in a way that served the aim of this research by capturing essential social and data for participants who sustained limb injury in Saudi Arabia and presented to Saudi Hospitals. The need for this data is explained by the dearth of research and statistical information particularly in Saudi society, such as causes of limb injury, nationality, medical managements, age and gender in Saudi Arabia. Data came from a total of 302 respondents. Their average age was 35 (SD=18.81) ranging from 18 to 82 years old. Around two thirds (68.5%) were males and majority were Saudi nationals (89.1%) (see Table 4.2).

Table 4.2 Distribution of participants: Nationality by Gender

	Nationality			
	Non-Saudi	Saudi	Total	%
Female	21	74	95	31.5%
Male	12	195	207	68.5%
Total	33	269	302	
%	10.9%	89.1%		

Table 4.3 reports level of education by gender. Almost one third (29.5%) of the participants had no schooling, and more females than males had no schooling or had never been to a school. Participants who completed their secondary schools are reported as 29.1%. A substantial proportion were still in secondary school (19.2%) and the remainder either had a Diploma (7.9%), a Bachelor (12.3%) or a Master's degree (2%). There was less education for females than males at all education levels.

Table 4.3 Distribution of participants: Education Level by Gender

	Gender			
Education level	Female	Male	Total	%
No schooling	54	35	89	29.5%
Still in Secondary School	9	49	58	19.2%
Completed Secondary school	20	68	88	29.1%
Diploma	5	19	24	7.9%
Bachelor	6	31	37	12.3%
Masters degree	1	5	6	2.0%
Total	95	207	302	
%	31.5%	68.5%		

Table 4.4 shows the employment status frequency for participants with limb injury: almost half were employed, but 24.0 % of the employed indicated that they were on sick leave due to injury. Almost 25% of the respondents were unemployed, and another 23.8% were still students. Also, female were less employed and less studying compared to male participants.

Table 4.4 Distribution of participants: Employment Status by Gender

	Gender			
Employment Status	Female	Male	Total	%
Employed (still working)	18	45	63	20.9%
Employed (on leave)	4	71	75	24.8%
Unemployed	63	12	75	24.8%
Retired	2	15	17	5.6%
Student	8	64	72	23.8%
Total	95	207	302	
Percentage	31.5%	68.5%		

Table 4.5 illustrates participants' living status: most of the participants with limb injury are living with their family (80.8%) while 15.9% said they live alone. When asked if they provided the main source of income for their household, 59% (n=177) indicated no, while 41% (n=125) indicated a yes response.

Table 4.5 Frequency Distribution of Living Set-up.

Living Set-up	Frequency	%
Alone	48	15.9
With friend	8	2.6
Family	244	80.8
Total	300	99.3
missing data	*2*	*0.7*

4.3.2 Causes of injury

Figure 4.1 illustrates the different causes of injury. The most common cause of limb injury in the sample was falls 46% (n=139) followed by pedestrians injured by road traffic accidents (n=78) 25.8%. The result was discrepancy from what the researchers expected (that the most common cause of injury would be RTAs); it is concluded that the RTA injured participants

hada major injury which is not included in the research criteria. Further, since the demographic most effected by RTAs is 16 to 36 year old male it is concluded that this group of patients may be less likely to attend OPD and therefore could not be invited to participate in a representative proportion of the sample. The lowest frequency number was motorcycle accidents, likely due to high temperatures for cyclist in Saudi. See Figure 4.1

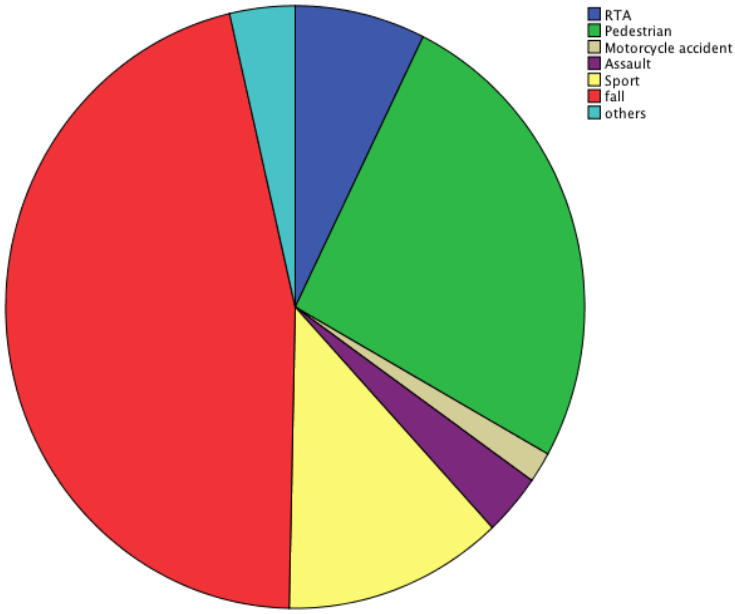


Figure 4.1 Causes of Limb Injury

Table 4.6 reports the number of participants with limb injury admitted to hospital due to their injury. Most participants were not admitted (65.2%) (n=197), so perhaps the limb injury was not a major injury which was the inclusion criterion. However, (34.8%) (n=105) were admitted, whether into day surgery or surgical wards, and lower limbs were more common cases of admission than upper limb: right leg injury (n=41), and left leg injury (n=39) were the most common cases.

Table 4.6 Frequency Distribution of Injured Body Part by Hospital Admission

	Admitted to Hospital?			
Injured Body Part	No	Yes	Total	%
Right hand	47	7	54	17.9%
Left hand	52	15	67	22.2%
Right leg	42	41	83	27.5%
Left leg	54	39	93	30.8%
Total	197	105	302	
Percentages	65.2%	34.8%		

4.4 Correlations between the Outcome Variables

This part addresses the predictor variables of discharge preparation, satisfaction ratings and clarity of instructions, correlated with the main outcome variables of the study: self-care ability, psychological distress, overall health, and unplanned ED return. Bivariate correlation analysis was used for the analysis because most of the published studies using Likert scales treat it as continuous variable (Hayes, 2013; Miles & Shevlin, 2001). Table 4.7 presents a summary of the correlation analysis. Results indicated that as discharge preparation ratings went down, there was a higher likelihood for unplanned ED return ($r=-.174$, $p<.01$). A similar pattern was observed between clarity of instructions and unplanned ED return ($r=-.220$, $p<.01$). Both discharge preparation, satisfaction ratings and clarity of instructions were positively related to each other ($r=.583$, $p<.01$). Psychological distress and self-care ability were also positively correlated ($r=.196$, $p<.01$).

Table 4.7 Correlations between Main Variables.

	Variables	M	SD	1	2	3	4	5
1	Discharge Preparation	3.05	1.21					
2	Clarity of Instructions	3.50	1.67	**.583****				
3	Self-care Ability	32.74	9.92	.066	.048			
4	Psychological Distress	27.79	5.37	.095	.111	**.196****		
5	Overall Health	3.68	1.13	.020	-.011	-.076	.092	
6	Unplanned ED Return	0.46	0.50	**-.174****	**-.220****	.045	.013	.025

*p<.05, **p<.01, N=302

4.5 Effect of Type and Source of Instruction on Outcome Variables

This part addresses whether the type of instruction (verbal in their primary language, verbal but not in their primary language, paper instructions, demonstrations) and source of instruction (Nurses, Doctors, both nurses and doctors) predict the outcome variables of the study (discharge preparation rating, clarity of instructions, self-care ability, psychological distress, and overall health). Two-way analysis of variance (ANOVA) was used to determine the direct and interaction effects of type of instruction and source of instruction. The independent variables are ordinal categorical and therefore ANOVA is not strictly applicable (Pallant, 2010). However, the use of ANOVA provides insights into the effect of the variables and their interaction which could not be readily derived otherwise: one must always keep in mind the fact that the P-values are by no means exact. Separate analysis was done for each of the five outcome variables.

4.5.1 Discharge preparation ratings

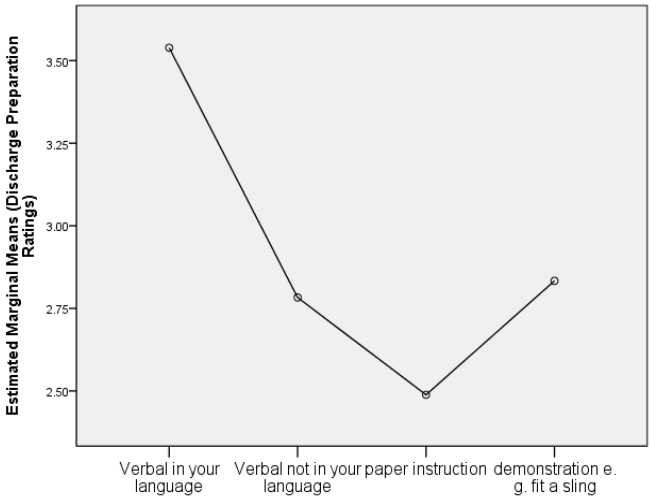
The results indicated that both type of instruction and source of instruction had significant direct effects on ratings for discharge preparation. Further analysis indicated that participants who received verbal instruction in the participant's own language rated the discharge preparation significantly higher compared to the other types of instructions (verbal but not in their primarily language, paper instruction, and demonstration instructions). The result also indicated that participants who received instruction from both nurses and doctors (multidisciplinary team) had significantly higher discharge preparation ratings compared to other type of instructions; and 'from nurses' had significantly higher discharge preparation ratings compared to those who received instructions only from doctors. See Tables 4.8 and 4.9 for details of the mean and Figure 4.3 for the profile plots of the direct and interaction effects.

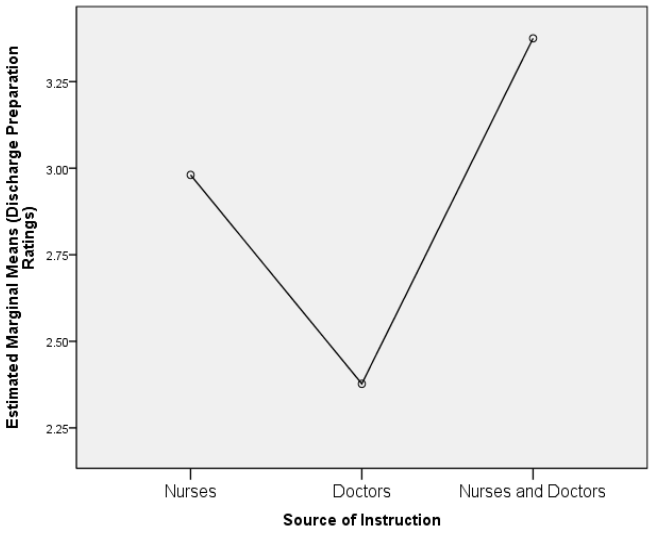
Table 4.8 Mean Ratings for Different Types of Instruction

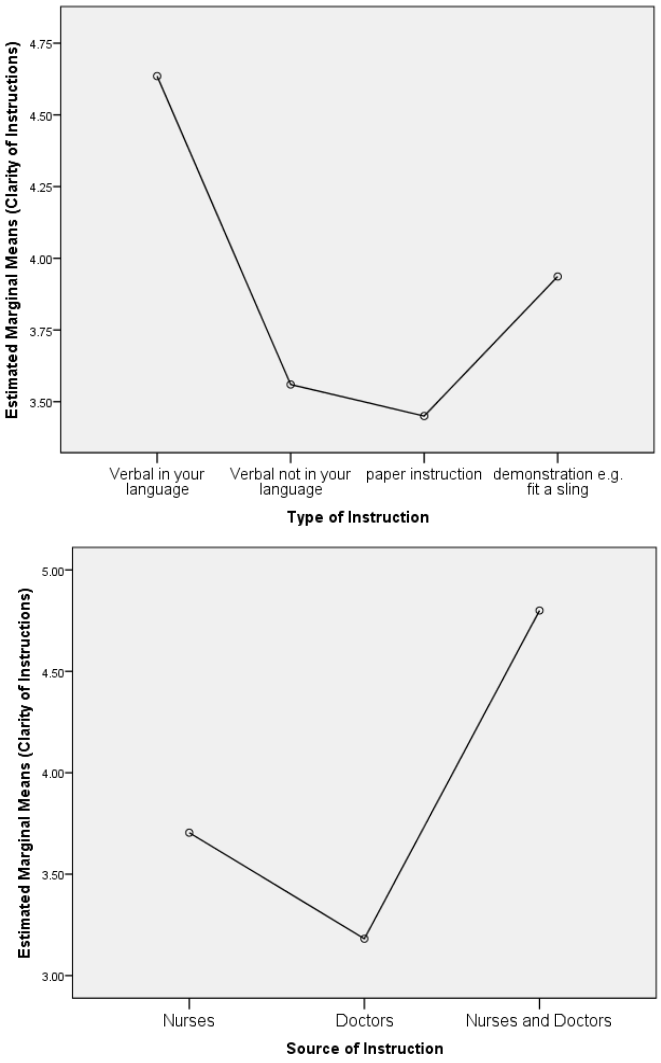
Type of Instruction	M	SE
1. Verbal in own language	3.539	.142
2. Verbal not in own language	2.783	.173
3. Paper instruction	2.488	.275
4. Demonstration	2.833	.398

Table 4.9 Mean Ratings for Different Source of Instruction

Source of Instruction	M	SE
1. Nurses	2.981	.137
2. Doctors	2.377	.136
3. Nurses & Doctors	3.375	.350







Figures 4.2 Profile Plots of Discharge Preparation Ratings

4.5.2 Clarity of instructions

Findings indicated that both type of instruction and source of instruction had significant direct effects on ratings for clarity of instructions. Further analysis indicated that respondents who received verbal instruction in the respondent's language rated the clarity of instruction significantly higher compared to the other types of instruction (verbal but not in the language of the respondent, paper instruction, and demonstration instructions). Demonstration also led to significantly higher clarity of instruction ratings compared to paper instruction and verbal but not in the respondent's language. Findings also indicated that respondents who received

instruction from both nurses and doctors had significantly higher discharge preparation ratings, compared to those who received instructions only from doctors or only from nurses. See Tables 4.10 and 4.11 for details of the mean comparisons and Figure 4.2 for the profile plots of the direct and interaction effects.

Table 4.10 Mean Ratings for Different Types of Instruction

Type of Instruction	M	SE
1. Verbal in own language	4.635	.173
2. Verbal not in own language	3.560	.210
3. Paper instruction	3.450	.336
4. Demonstration	3.937	.485

Table 4.11 Mean Ratings for Different Source of Instruction

Source of Instruction	M	SE
1. Nurses	3.705	.167
2. Doctors	3.182	.166
3. Nurses & Doctors	4.800	.427

4.5.3 Self-care ability

Table 4.12 is a summary of the ANOVA and indicates that both type of instruction and source of instruction had no significant direct effects on self-care ability. Perhaps the reason for no significance is self-care ability depends on the extent of the injury and the ability to manage care.

Table 4.12 Effect of Type and Source of Instruction on Self-Care Ability

ANOVA Summary

	F	df1	df2	p
Dependent Var.: Self-Care Ability				
Predictors:				
Type of Instruction	2.003	3	243	0.114
Source of Instruction	1.901	2	243	0.152

4.5.4 Psychological distress

The result indicated that both type of instruction and source of instruction had no significant direct effects on psychological distress. See Table 4.13 for the summary of the ANOVA.

Table 4.13 Effect of Type and Source of Instruction on Psychological Distress

ANOVA Summary

	F	df1	df2	p
Dependent Var.: Psychological Distress				
Predictors:				
Type of Instruction	1.513	3	209	0.212
Source of Instruction	0.721	2	209	0.488

4.5.5 Overall health

Findings indicated that type of instruction had significant direct effects on overall health. Source of instruction, however, was not a significant predictor. See Table 4.14 for the summary of the ANOVA.

Table 4.14 Effect of Type of Instruction and Source of Instruction on Overall Health

ANOVA Summary

	F	df1	df2	p
Dependent Var.: Overall Health				
Predictors:				
Type of Instruction	3.133	3	246	0.026
Source of Instruction	0.992	2	246	0.372

4.6 Predictors of Unplanned Return to ED

This part addresses the question whether the outcome variables (discharge preparation, satisfaction ratings, clarity of instructions, self-care ability, psychological distress, and overall health) predict unplanned return to ED. Logistic regression analysis was used since the dependent variable (return to ED) is a dichotomous measure. Age and gender were also entered in the equation. The summary of the logistic regression analysis is presented in Table 4.15.

Findings indicated that a significantly predicted ED return (omnibus chi-square = 31.295, p<.001). The accounted for between 12.4% and 16.5% of the hospitals' variance in ED return, with 56% of the returnees to ED successfully predicted. For non-returnees, 77.8% of the predictions were accurate. Overall predictions were 64.5% of hospitals accurate.

Results indicated that

- As clarity of instructions increased, the odds of returning to ED declined (p=.002).
- For every unit of increase in clarity of instructions, the odds of returning ED decreased by a factor of .72 (95% CI .59 and .89).
- Age was also a significant predictor. As age increased, the odds of returning to ED increases (p=.032).

- For every one year of increase in age, the odds of returning to ED were 1.02 times higher than the odds of not returning (95% CI 1.00 to 1.04).
- Gender was also a significant predictor: the odds of returning to ED were less for females (p=.002).
- The odds of returning to ED for females were less by a factor of .33 (95% CI .17 to .67)

Table 4.15 Summary of Logistic Regression Analysis

							95% CI for Odds Ratio	
	B	SE	Wald	df	*p*	Odds Ratio	Lower	Upper
Dependent Variable:								
Unplanned ED Return								
Predictors:								
Discharge Preparation Ratings	-0.096	0.1395	0.478	1	0.489	0.908	0.69	1.19
Clarity of Instructions	-0.323	0.1045	9.555	1	**0.002**	0.724	0.59	0.89
Self-Care Ability	0.0231	0.0151	2.336	1	0.126	1.023	0.99	1.05
Psychological Distress	-0.01	0.0272	0.149	1	0.700	0.990	0.94	1.04
Overall Health	0.0226	0.128	0.031	1	0.860	1.023	0.80	1.31
Age	0.0226	0.0106	4.573	1	**0.032**	1.023	1.00	1.04
Gender	-1.093	0.3513	9.682	1	**0.002**	0.335	0.17	0.67

Model Summary	R^2 (Cox & Snell)	R^2 (Nagelkerke)	χ^2	df	*p*
Overall Fit	0.124	0.165	31.29	7	<.001
Hosmer and Lemeshow Test			2.47	8	0.963

4.7 Demographic Differences between Returnees and Non-returnees to ED

This section examines the demographic differences between participants who had, and did not have, unplanned return to ED. The differences were assessed across the following demographic variables: gender, nationality, education, employment status, and living set-up. Chi square (*χ2)* analysis was used because all the variables have categorical measures.

4.7.1 Gender

The results indicated that almost half (46%, n=139) of participants with limb injury had unplanned returns to ED: 37 out of 95 participants, of whom the majority were male (69%) and the remainder female and (see Table 4.16).

Table 4.16 Contingency Table (Gender by Unplanned ED Return)

	Gender					
	Female		Male		Total	
	Frequency	%	Frequency	%	Frequency	%
Non-return	58		105		163	54%
Return	37		102		139	46%
Total	95	31%	207	69%	302	100%

χ2(2, N=302)=2.796, p=.095

The result shows that a high percentage had returned to the ED: 34.4% returned once, 7% twice, and 3.3% returned to ED three times or more (see Table 4.17).

Table 4.17 Number of times returned to ED

	Number times of returned to ED	
	Frequency	Percentage
Non-return	163	54.7%
Returned one time	104	34.4%
Returned two times	21	7%
Returned three times or more	10	3.3%

The reasons behind returning are varied; however cast complications were the reason for 34.5% of returnees, and pain, 8%. See Figure 4.4 for reasons for returning to ED

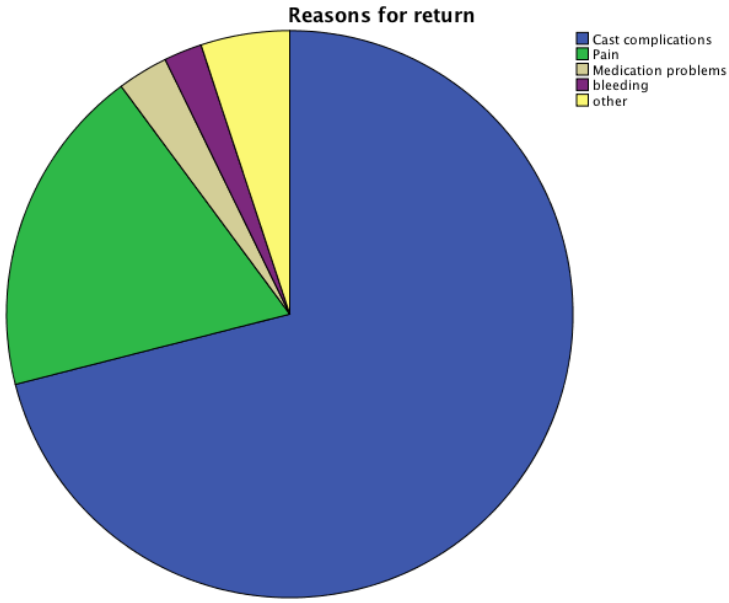


Figure 4.3 Reasons For Returned to ED

4.7.2 Nationality

Findings indicated that there was no significant relationship between nationality and unplanned return to ED. *p=.944*. See Table 4.18 and Figure 4.6.

Table 4.18 Contingency Table (Nationality by Unplanned ED Return)

	Nationality					
	Non-Saudi		Saudi		Total	
	Frequency	%	Frequency	%	Frequency	%
Non-Returnee	18		145		163	54%
Returnee	15		124		139	46%
Total	33	11%	269	89%	302	100%

χ2(1, N=302)=.005, p=.944

4.7.3 Educational level

Results indicated that there was a significant relationship between educational level and unplanned return to ED (*χ2(5, N=302)=.34.837, p<.001*) *(*see Table 4.19 and Figure 4.5). The pattern of frequency counts is statistically more for those who have no schooling or only completed secondary school and less for participants with Bachelor, Diploma, and Masters degree. The pattern of frequency of level of education with non-returnee to ED was observed too.

Table 4.19 Contingency Table (Education Level by Unplanned ED Return)

	Unplanned ED Return					
	Non-Returnee		Returnee		Total	
Education Level	Frequency	%	Frequency	%	Frequency	%
No schooling	37	23%	52	37%	89	29%
Still in Secondary School	49	30%	9	6%	58	19%
Completed Secondary school	44	27%	44	32%	88	29%
Diploma	13	8%	11	8%	24	8%
Bachelor	20	12%	17	12%	37	12%
Master degree	0	0%	6	4%	6	2%
Total	163	54%	139	46%	302	100%

χ2(5, N=302)=.34.837, p<.001

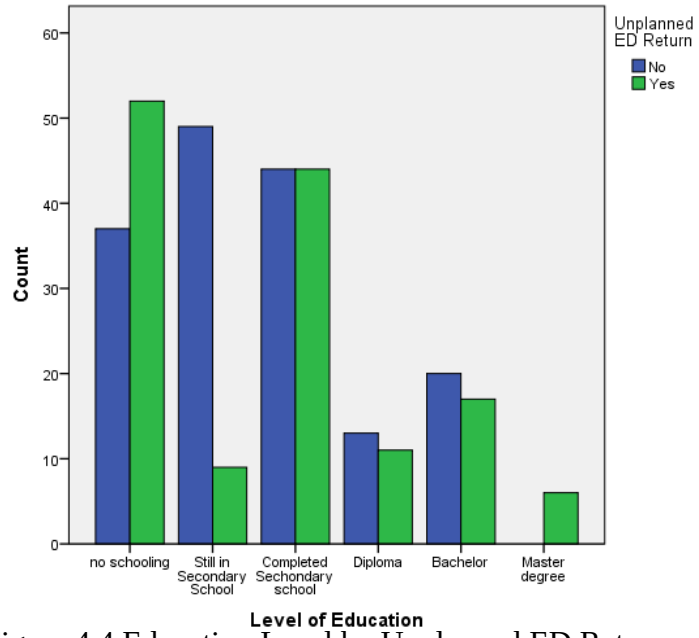


Figure 4.4 Education Level by Unplanned ED Return

4.7.4 Employment status

Result indicated that there was a significant relationship between employment status and unplanned return to ED, *χ2(4, N=302)=.38.015, p<.001*. Employed who were on leave were 37% of returnees, then unemployed, 24%, and employed who were still working 21%. The lowest score were retired participants, with 10% of returnees. See Table 4.20 and Figure 4.6 .

Table 4.20 Contingency Table (Employment Status by Unplanned ED Return)

	Unplanned ED Return					
	Non-returnee		Returnee		Total	
Employment Status	Frequency	%	Frequency	%	Frequency	%
Employed (still working)	34	21%	29	21%	63	21%
Employed (on leave)	23	14%	52	37%	75	25%
Unemployed	41	25%	34	24%	75	25%
Retired	7	4%	10	7%	17	6%
Student	58	36%	14	10%	72	24%
Total	163	54%	139	46%	302	100%

χ2(4, N=302)=.38.015, p<.001

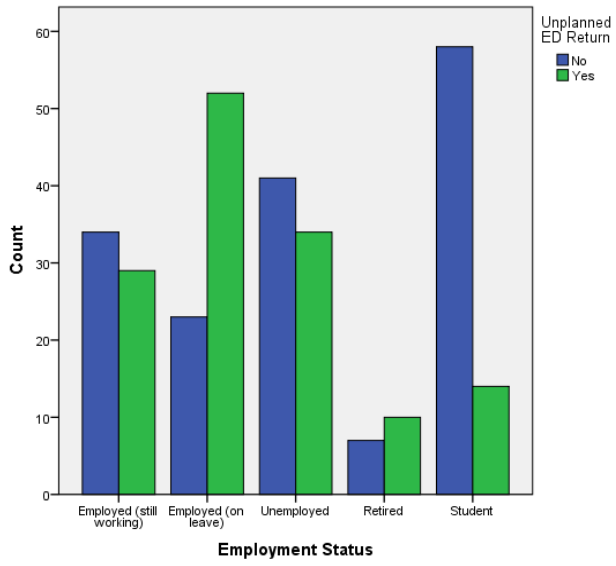


Figure 4.5 Employment Status by Unplanned ED Return

4.7.5 Living set-up

The result indicated that there was no significant relationship between living set-up and unplanned return to ED (*χ2(42 N=300)=.2.42 p=.298*); however, most of participants lived with their family (81% of total participants) and only 3% lived with friends. See Table 4.21 and Figure 4.7.

Table 4.21 Contingency Table (Living Set-up by Unplanned ED Return)

	Unplanned ED Return					
	Non-Returnee		Returnee		Total	
Living Set-Up	Frequency	%	Frequency	%	Frequency	%
Alone	21	13%	27	19%	48	16%
With friend	5	3%	3	2%	8	3%
Family	135	84%	109	78%	244	81%
Total	161	54%	139	46%	300	100%

χ2(42 N=300)=.2.42, p=.298

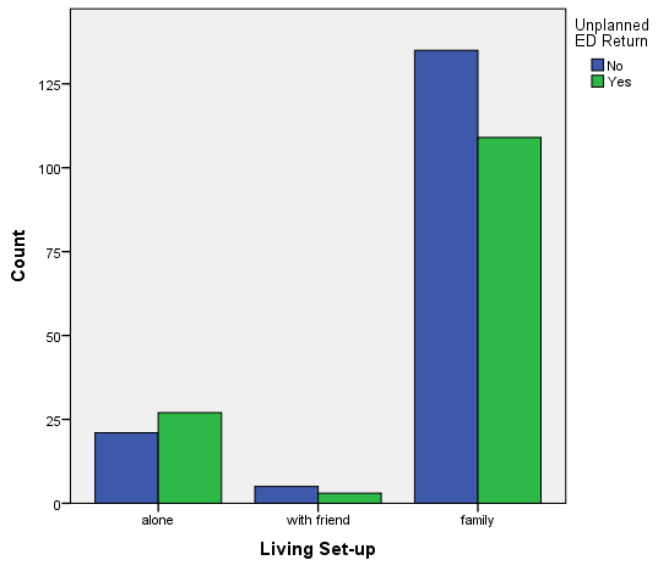


Figure 4.6 Living Set-up by Unplanned ED Return

4.8 Injured Body Parts and Differences between Returnees and Non-returnees to ED

This part examines the injured body part with differences between participants who had and did not have unplanned return to ED. Chi square ($\chi 2$) analysis was used because all the variables have categorical measures. The result indicated that there was no significant relationship between injured body part, whether upper or lower limb injury, and unplanned return to ED, $p=.554$ (ee Table 4.22).

Table 4.22 Contingency Table (Injured Body Part by Unplanned ED Return)

	Unplanned ED Return					
	Non-Returnee		Returnee		Total	
Injured Body Part	Frequency	%	Frequency	%	Frequency	%
Right hand	29	18%	25	18%	54	18%
Left hand	38	23%	29	21%	67	22%
Right leg	50	31%	33	24%	83	27%
Left leg	43	26%	50	36%	93	31%
Total	163	54%	139	46%	302	100%

$\chi 2(5, N=302)=3.965, p=.554$

4.9 Demographic Differences across Outcome Variables (Discharge Planning Ratings, Clarity of Instructions, Self-Care Ability, Psychological Distress, and Overall Health)

This part examines demographic differences in the outcome variables: discharge preparation ratings, clarity of instruction, self-care ability, psychological distress, and overall health. For the analysis of gender and nationality, a t-test was used because these variables have only two categories. For all other variables which have more than two categories to compare, one way analysis of variance (ANOVA) was used to analyse the data.

4.9.1 Gender

Results indicated that among the five outcome variables analysed, there was a significant gender difference in self-care ability. Findings indicate that females had significantly higher self-care ability compared to males (see Table 4.23).

Table 4.23 Mean Gender Differences Across the Outcome Variables

	Gender						
	Female		Male				
	n = 94		n = 206				
Variables	M	SD	M	SD	t	df	p
Discharge Preparation Ratings	3.11	1.20	3.02	1.22	0.58	298	0.565
Clarity of Instructions	3.23	1.67	3.62	1.22	-1.88	297	0.060
Self-Care Ability	35.21	9.58	31.55	9.89	2.98	288	**0.003**
Psychological Distress	27.34	4.27	28.02	5.85	-0.96	253	0.339
Overall Health	3.59	1.08	3.72	1.15	-0.92	292	0.360

4.9.2 Nationality

Results indicated that among the 5 outcome variables analysed, there was a significant difference between Saudi and non-Saudi nationals in ratings for clarity of instruction. Findings indicated that Saudi nationals had significantly higher ratings for clarity of instructions compared to non-Saudi nationals (see Table 4.24).

Table 4.24 Mean Differences between Nationalities across the Outcome Variables

	Nationality						
	Non-Saudi n = 32		Saudi n = 268				
Variables	M	SD	M	SD	t	df	p
Discharge Preparation Ratings	3.03	1.43	3.05	1.19	-0.08	298	0.939
Clarity of Instructions	2.94	1.68	3.57	1.19	-2.06	297	**0.040**
Self-Care Ability	32.42	8.37	32.78	10.12	-0.19	288	0.847
Psychological Distress	27.33	5.19	27.84	5.40	-0.47	253	0.642
Overall Health	3.36	1.06	3.72	1.13	-1.71	292	0.088

4.9.3 Educational level

Results showed that there were significant differences between education levels in terms of discharge preparation ratings, clarity of instructions, self-care ability, and psychological distress (see Table 4.25). The mean comparisons specifically showed that discharge perception ratings were significantly higher for those who completed secondary school compared to those who had no schooling (see Table 4.26). All other pairwise comparisons for clarity of instructions, self-care ability, and psychological distress were not statistically significant. See Tables 4.27 - 4.29 and Figures 4.9 - 4.11.

Table 4.25 Effect of Education on the Outcome Variables

ANOVA Summary

	F	df1	df2	p
Predictor: Education				
Dependent Variables				
Discharge Preparation Ratings	3.456	5	294	**0.005**
Clarity of Instructions	2.559	5	293	**0.028**
Self-Care Ability	2.974	5	284	**0.012**
Psychological Distress	2.527	5	249	**0.030**
Overall Health	0.863	5	288	0.506

Table 4.26 Comparisons of Discharge Preparation Ratings across Education Levels

				Adjusted Mean Difference (Discharge Preparation Ratings)					
	Education	M	SE	1	2	3	4	5	6
1	No schooling	2.70	1.13		-.385	-.719*	-.091	-.380	-.299
2	Still in Secondary School	3.09	1.14			-.334	.295	.005	.086
3	Completed Secondary school	3.42	1.33				.629	.339	.420
4	Diploma	2.79	1.10					-.289	-.208
5	Bachelor	3.08	1.12						.081
6	Master degree	3.00	.89						

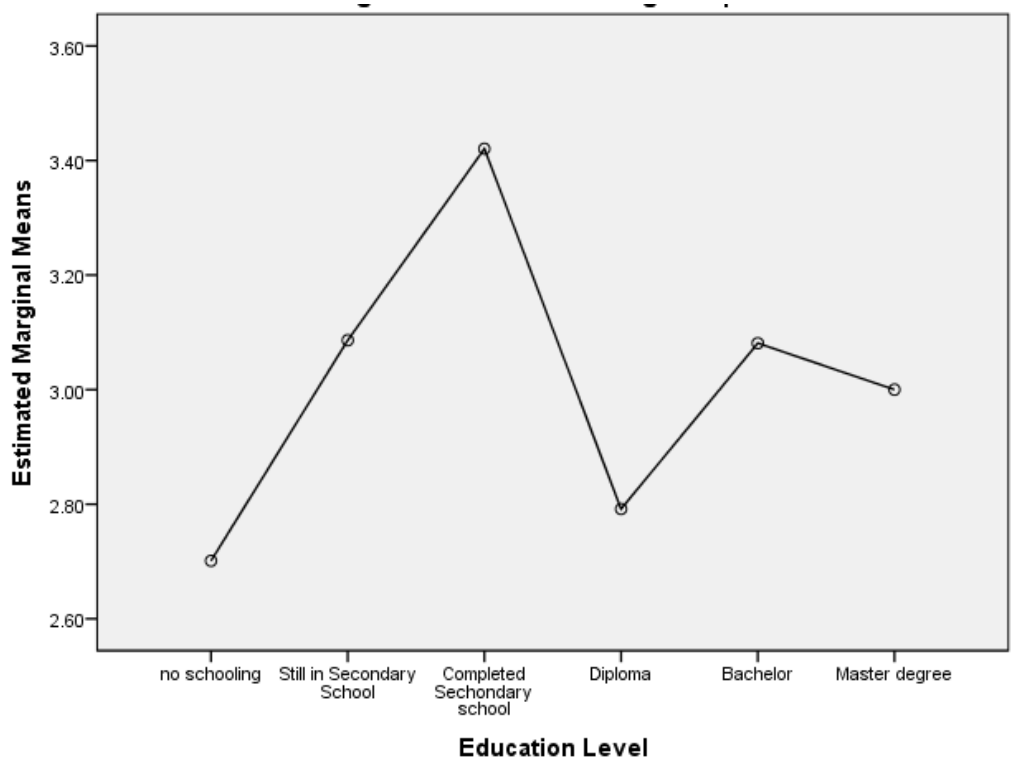


Figure 4.7 Education Levels across Discharge Preparation

Table 4.27 Comparisons of Clarity of Instructions across Education Levels

				Adjusted Mean Difference (Clarity of Instructions)					
	Education	M	SE	1	2	3	4	5	6
1	No schooling	3.18	1.53		-.766	-.531	-.485	.074	.515
2	Still in Secondary School	3.95	1.39			.235	.281	.839	1.281
3	Completed Secondary school	3.71	1.85				.046	.605	1.046
4	Diploma	3.67	1.27					.559	1.000
5	Bachelor	3.11	1.82						.441
6	Master degree	2.67	2.58						

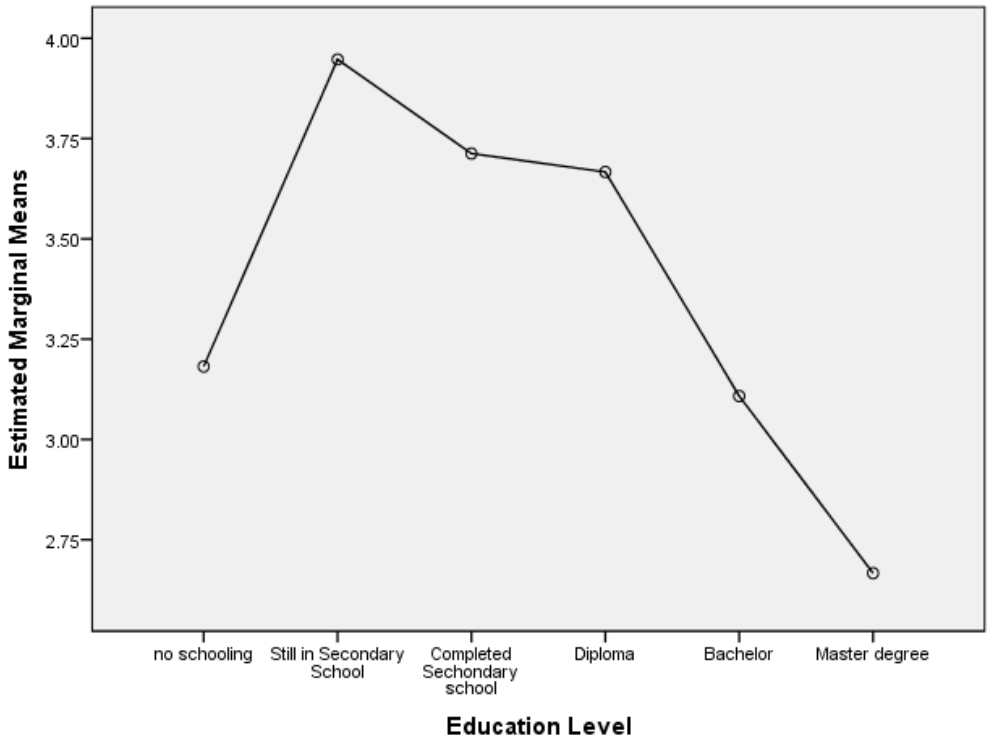


Figure 4.8 Education Levels across Clarity of Instructions

Table 4.28 Comparisons of Self-Care Ability Across Education Levels

				Adjusted Mean Difference (Self-Care Ability)					
	Education	M	SE	1	2	3	4	5	6
1	No schooling	35.74	9.71		4.609	3.124	6.830	4.955	4.739
2	Still in Secondary School	31.13	10.45			-1.485	2.221	.346	.130
3	Completed secondary school	32.61	9.52				3.705	1.831	1.614
4	Diploma	28.91	9.33					-1.875	-2.091
5	Bachelor	30.78	10.09						-.216
6	Master degree	31.00	4.98						

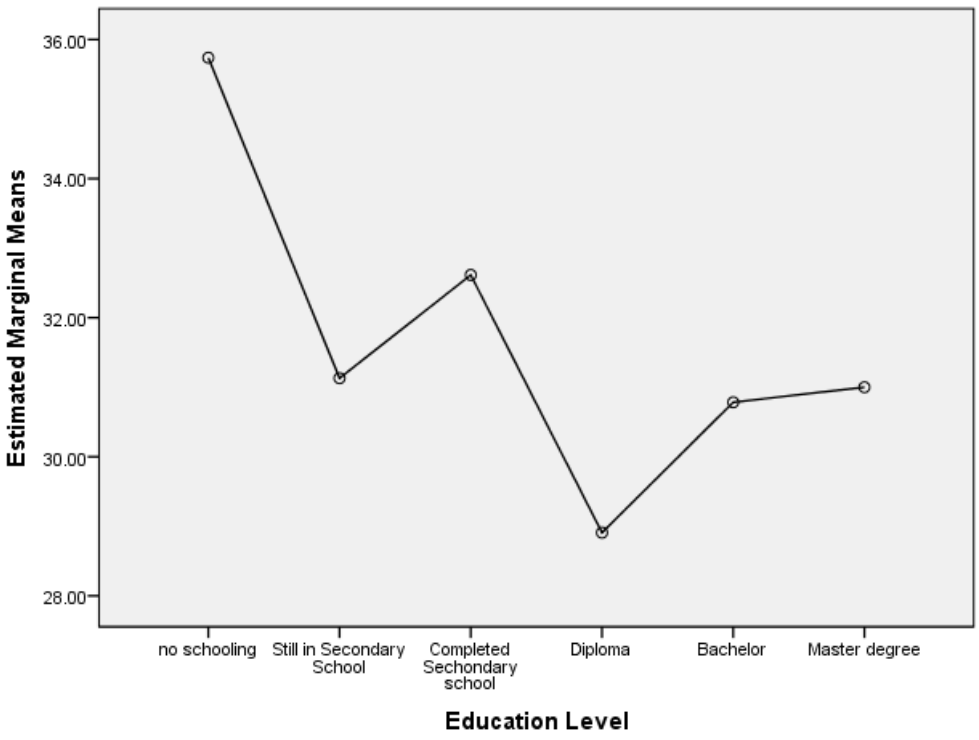


Figure 4.9 Education Levels Means across Self Care Ability

Table 4.29 Comparisons of Psychological Distress across Education Levels

				Adjusted Mean Difference (Psychological Distress)					
	Education	M	SE	1	2	3	4	5	6
1	No schooling	27.77	4.32		1.367	-1.433	-1.292	1.385	1.434
2	Still in Secondary School	26.40	5.68			-2.800	-2.659	.018	.067
3	Completed secondary school	29.20	5.95				.141	2.818	2.867
4	Diploma	29.06	4.38					2.676	2.725
5	Bachelor	26.38	5.69						.049
6	Master degree	26.33	2.88						

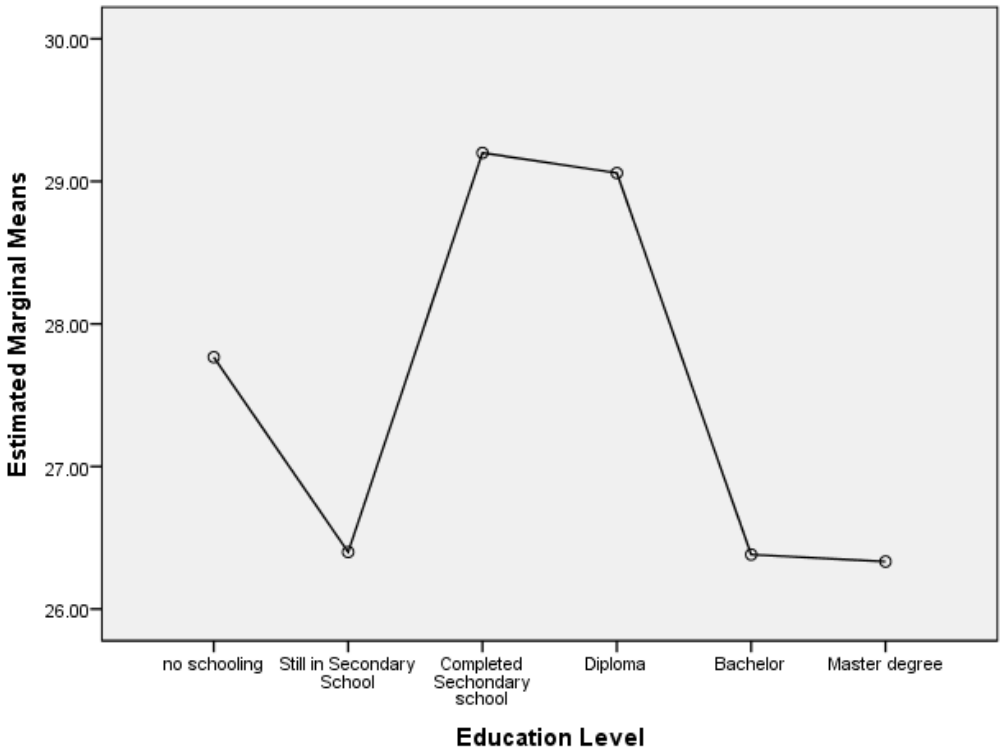


Figure 4.10 Education Levels Means across Psychological Distress

4.9.4 Employment status

Results showed that there were significant differences between employment status in terms of self-care ability (see Table 4.30). However, the pairwise comparisons showed that none of the pairwise comparisons were significant (see Table 4.31). All detailed pairwise comparisons are presented in Tables 4.32 to 4.35.

Table 4.30 Effect of Employment Status on the Outcome Variables

ANOVA Summary

	F	df1	df2	p
Predictor: Education				
Dependent Variables				
Discharge Preparation Ratings	2.294	4.000	295	0.059
Clarity of Instructions	1.786	4.000	294	0.132
Self-Care Ability	3.847	4.000	285	**0.005**
Psychological Distress	1.228	4.000	250	0.299
Overall Health	0.182	4.000	289	0.948

Table 4.31 Comparisons of Discharge Preparation Ratings Across Employment Status

				Adjusted Mean Difference (Discharge Preparation Ratings)				
	Employment Status	M	SE	1	2	3	4	5
1	Employed (still working)	3.35	1.18		.525	.390	.643	.169
2	Employed (on leave)	2.82	1.26			.118	-.356	-.390
3	Unemployed	2.96	1.20				-.643	-.118
4	Retired	2.71	.85					.221
5	Student	3.18	1.23					

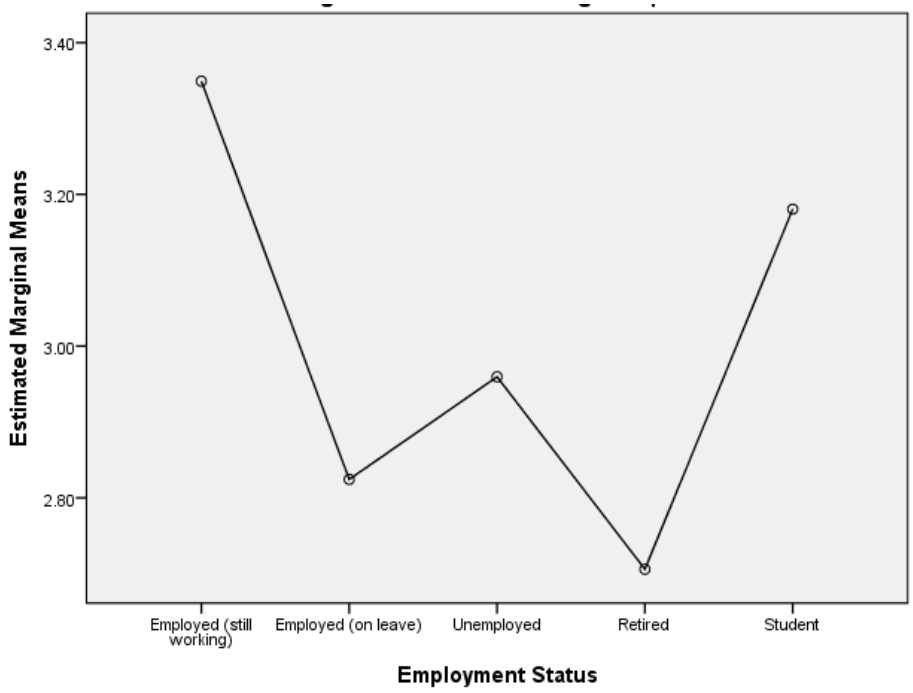


Figure 4.11 Employment Status Across Discharge Preparation

Table 4.32 Comparisons of Clarity of Instructions across Employment Status Levels

				Adjusted Mean Difference (Clarity of Instructions)				
	Employment Status	M	SE	1	2	3	4	5
1	Employed (still working)	3.48	1.79		.241	.146	-.163	-.433
2	Employed (on leave)	3.24	1.75			-.404	-.673	-.146
3	Unemployed	3.34	1.55				.163	.404
4	Retired	3.65	1.41					.579
5	Student	3.92	1.62					

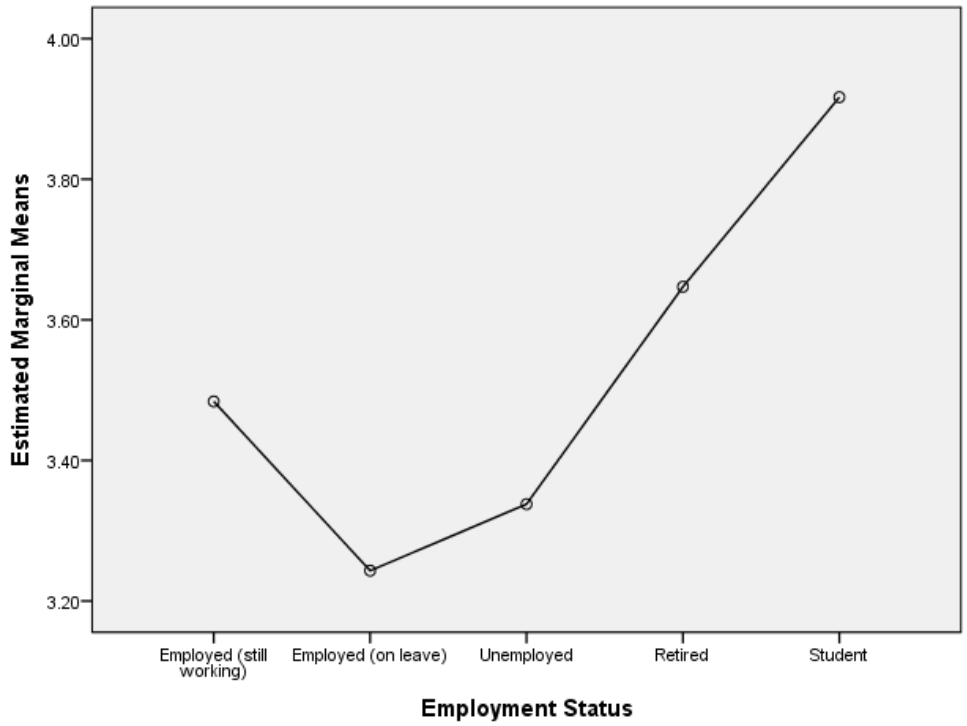


Figure 4.12 Employment Status across Clarity of Instructions

Table 4.33 Comparisons of Self-Care Ability across Employment Status Levels

				Adjusted Mean Difference (Self-Care Ability)				
	Employment Status	M	SE	1	2	3	4	5
1	Employed (still working)	31.08	7.81		-.621	-4.322	-7.034	.054
2	Employed (on leave)	31.70	9.37			-6.413	.675	4.322
3	Unemployed	35.41	10.54				7.034	6.413
4	Retired	38.12	10.08					-4.376
5	Student	31.03	10.58					

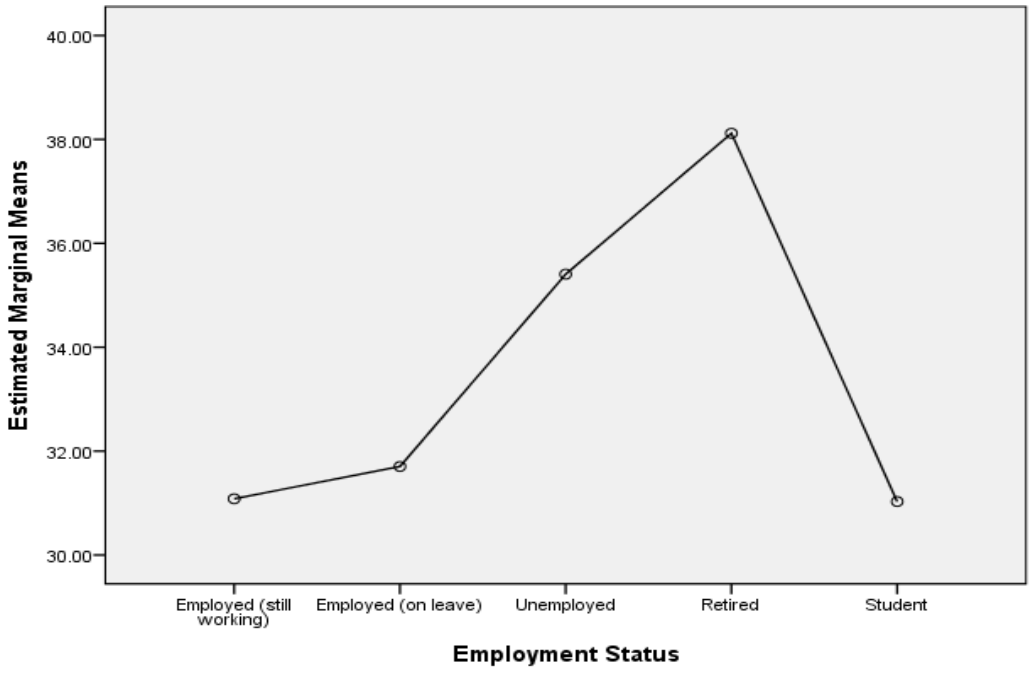


Figure 4.13 Employment Status Across Self Care Ability

Table 4.34 Comparisons of Psychological Distress across Employment Status Levels

				Adjusted Mean Difference (Psychological Distress)				
	Employment Status	M	SE	1	2	3	4	5
1	Employed (still working)	28.65	5.72		.542	.891	.315	2.122
2	Employed (on leave)	28.11	5.66			-.227	1.580	-.891
3	Unemployed	27.76	4.68				-.315	.227
4	Retired	28.33	4.05					-1.231
5	Student	26.53	5.60					

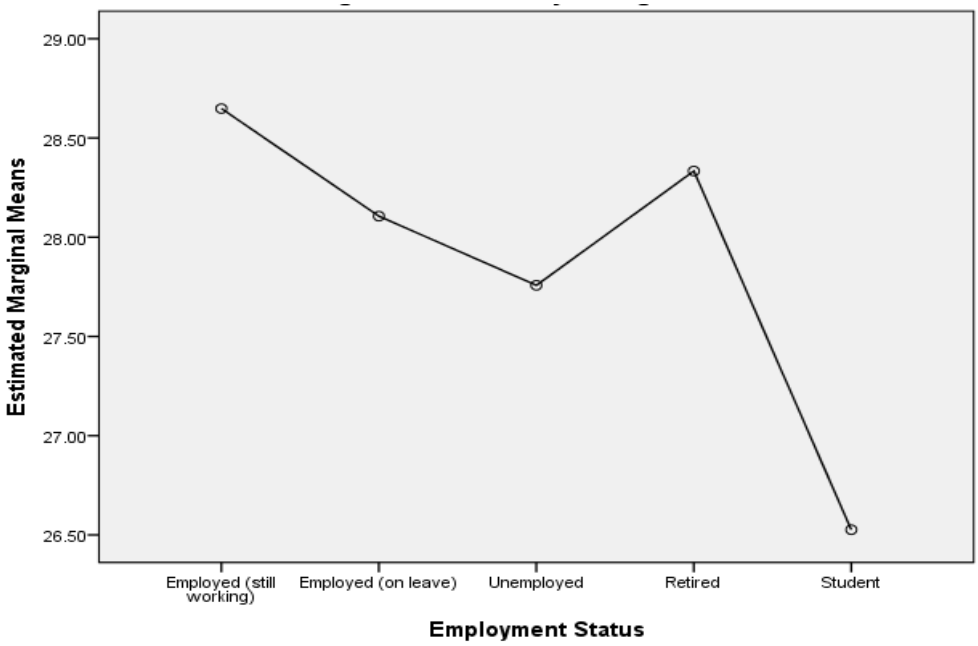


Figure 4.14 Employment Status across Psychological Distress

Table 4.35 Comparisons of Overall Health across Employment Status Levels

				Adjusted Mean Difference (Overall Health)				
	Employment Status	M	SE	1	2	3	4	5
1	Employed (still working)	3.76	1.07		.065	.069	.111	.167
2	Employed (on leave)	3.69	1.20			.046	.102	-.069
3	Unemployed	3.69	1.12				-.111	-.046
4	Retired	3.65	1.17					-.098
5	Student	3.59	1.14					

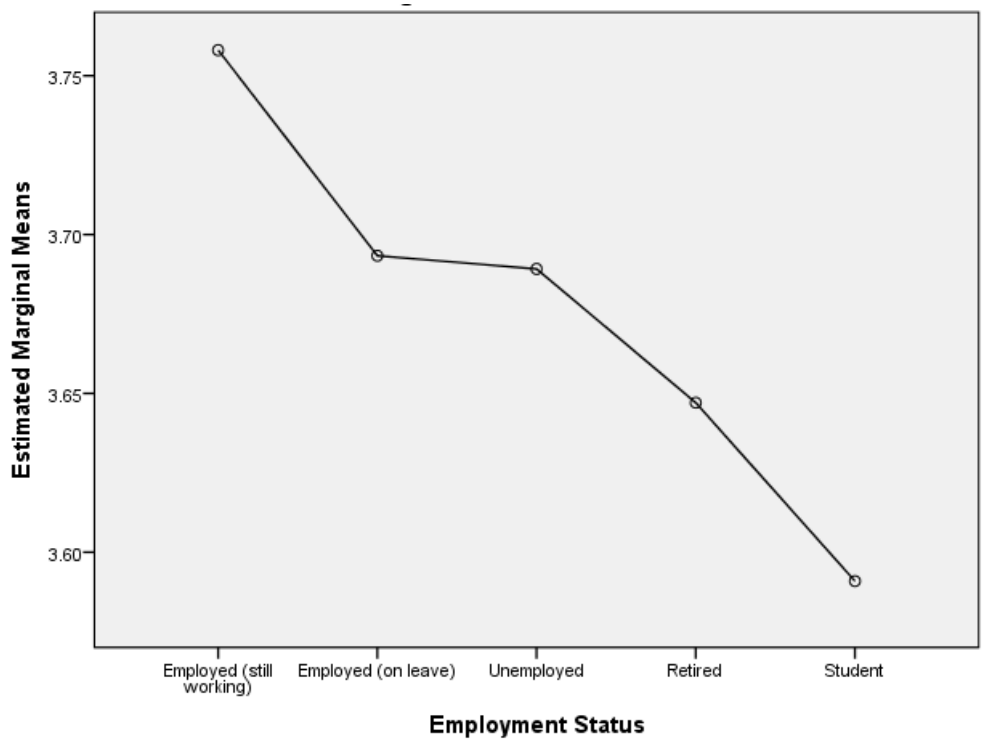


Figure 4.15 Employment Status Across Overall Health

4.10 Injured Body Part Differences across Outcome Variables (Discharge Preparation Ratings, Clarity of Instructions, Self-Care Ability, Psychological Distress, and overall Health)

This part examines injured body part differences in the outcome variables: discharge preparation ratings, clarity of instructions, self-care ability, psychological distress, and overall health. One way analysis of variance (ANOVA) was used to analyse the data. Results indicated that there were significant differences in self-care ability and overall health among respondents in the different categories of injured body part (See Table 4.36).

Table 4.36 Effect of Injured Part on the Outcome Variables

ANOVA Summary

	F	df1	df2	p
Predictor: Injured Part				
Dependent Variables				
Discharge Preparation Ratings	0.322	5.000	294	0.900
Clarity of Instructions	1.249	5.000	293	0.286
Self-Care Ability	13.501	5.000	284	**0.000**
Psychological Distress	2.055	5.000	249	0.072
Overall Health	3.388	5.000	288	**0.005**

The comparisons for self-care ability specifically showed that those who had right or left hand injuries (upper limb), scored significantly higher for self-care ability and overall health than those who had right or left leg injuries (lower limb), with right leg having significantly lower self-care ability scores (see Figure 4.16).

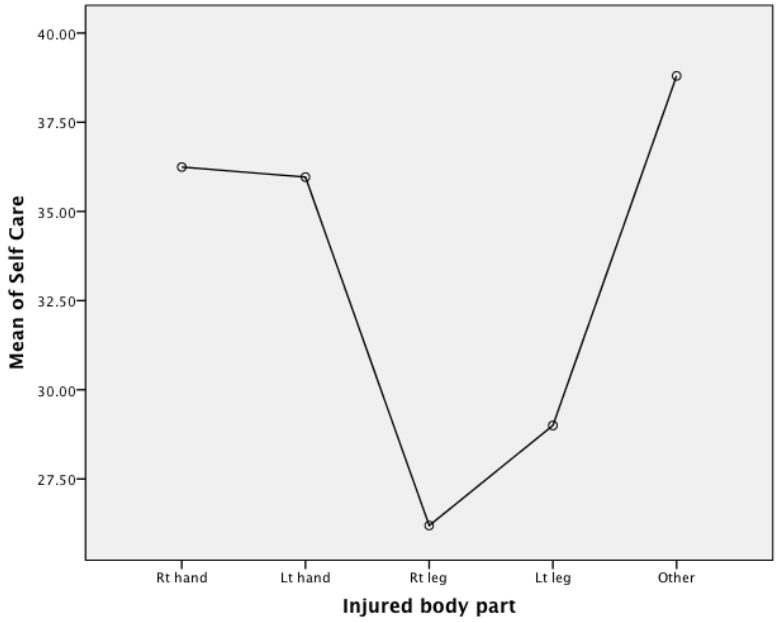


Figure 4.16 Injured Body Part Across Self Care Ability

4.11 Summary of Quantitative Findings

- As age increases, returns to ED increased (P = 0.03). Almost half (n = 139) or 46% of participants with limb injury had an unplanned return to ED, more for those who hade no schooling or only completed secondary school, and less for participants with higher education such as Bachelor, Diploma, and Masters degree.

- The causes behind returning varied: however, cast complications represented 34.5% and pain, 8%.

- The most common cause of limb injury in the sample was falls (n = 139) 46% followed by pedestrian injuries by Road Traffic Accidents (n=78) 25.8%.

- As discharge preparation satisfaction ratings went down, there wais a higher likelihood for unplanned ED return (P = 0.001). The same pattern was observed between clarity of instructions and unplanned ED return (P = 0.001). Both discharge preparation ratings and clarity of instructions are positively related to each other (p = 0.001). Psychological distress and self-care ability are also positively correlated (p = 0.001).

- Participants who received verbal instruction in the participant's primary language rated the discharge preparation significantly higher (P = 0.01) (compared to the other type of instructions (verbal but not in own language, paper instruction, and demonstration instructions).

- Participants who received instruction from both nurses and doctors (multidisciplinary team) had significantly higher (P = 0.01) discharge preparation rating compared to

other type of instructions, and 'from nurses' had significantly higher discharge preparation ratings, compared to those who received instructions only from doctors.

- As clarity of instructions increased, the returns to ED declined (P = 0.001)..
- Those who had right or left hand injuries (upper limb), scored significantly higher for self-care ability and overall health than those who had right or left leg injuries (lower limb).
- No significant relationship was found between nationality and unplanned return to ED.
- No significant relationship was found between injured body part, whether upper or lower limb injury, and unplanned return to ED.

4.12 Conclusion

The statistical analyses have enabled the reporting of the results for the overall sample with valuable quantitative information. The information derived from the analysis of the data enabled the first run of testing the hypotheses. Almost half of participants had unplanned return to ED (46%), the primarily reason for returning being cast complication, followed by pain. Such a high number of returnees indicates that a sufficient discharge plan for patients with limb injuries is not in place. Also, the main finding indicated that as discharge preparation decreased satisfaction ratings went down and there was a higher likelihood for unplanned ED return. Verbal instruction in participants' primary language rated higher compared to other type of instructions, and instructions from a multidisciplinary team (nurses and doctors) had significantly higher discharge preparation ratings compare to other type of instructions; and instructions from nurses had significantly higher discharge preparation ratings then doctors. In the following chapter the qualitative results are presented and the hypotheses will be tested.

CHAPTER FIVE: QUALITATIVE FINDINGS

5.1 Introduction

In this study, a mixed-methods approach was implemented to investigate the current discharge planning for non-major limb injury patients to determine to what extent it is systematic in Saudi Arabia Hospitals and to understand the extent to which Muslims rely on fatalism when encountering such injury. The previous chapter presented in detail the findings from the quantitative phase of the study with the data collected from patients with limb injury. This chapter presents the results of the qualitative phase with data collected from orthopaedic nurses. Qualitative data were gathered in the form of recorded words and sentences about their thoughts and experience of systematic or comprehensive discharge planning, and the extent of the belief in fatalism when encountering an injury. The aim of using quantitative and qualitative data was to achieve a better understanding of the relationship between dependent and independent variables and therefore increase the quality of the results. The convergence of quantitative and qualitative findings allowed for comparison and contrast of findings.

Analysis of the quantitative data in Phase One, investigated a clustering of related information, where there were also written open-ended questions included in the last part of the questionnaire. In Section 5.2 of this chapter, the results of the open-ended questions are reported. The findings of the qualitative analysis in Phase Two of the interview data are given as they relate in the following three sections: 5.3 description of the sample, 5.4 discharge planning, and 5.5 fatalism. These sections detail the qualitative analysis of the transcribed interview data, which was used to identify what was revealed in the responses offered by participants during the interviews. The statements made by participants on the topic were

therefore used to generate the content analysis that represents the common experiences and perceptions of the group (Moustakas, 1994).

The coded responses were grouped into content categories, each presented separately in this presentation of the findings. In addition, textual, verbatim examples taken directly from the interview transcripts are included to highlight and clarify the key concepts. All data were coded throughout the document relevant to the topic of interest, allowing the categories to emerge freely from the data. NVivo 10 qualitative analysis software was used to provide an organized workspace during the coding process and the development of coding and patterns from the data provided a simplified means of classification, sorting and arranging of information, and tracking the frequency of occurrences across the interview data. From the content categories and the constant comparing of elements and categories throughout the analysis, several overarching themes were developed. These themes represent the perceptions of the group as a whole and are therefore presented according to the research question regarding discharge planning and fatalism.

5.2 Findings for Open-ended Questions in Phase One (Patients)

An open-ended question was provided at the end of the questionnaire for patients with limb injury for any further comments about discharge planning process and experience recovering in the home environment, which may have not been covered by the questionnaire. These questions included:

1. In general, what has your experience been with discharge from the hospital to recover at your home?
2. If you could have changed something about the way the health service arranged your discharge, what would you suggest?

The patient answers to these questions were in the form of written response. Of the 302 participants included into the study, 44 (13%) added further comments. A content analysis technique was used to compare patient responses to reveal commonalities in responses.

5.2.1 Patients experience with discharge from hospital

For the first open-ended question for patients, key common responses that were relevant to the research questions included:

1. Difficulties experienced in attempting to fulfil discharge instructions, such as confusion over follow-up visits, not able to find clinic, pharmacy closed, could not find supply area for crutches, and difficulty booking appointments (10 patient responses);
2. Experiences of long wait times (6 patient responses).
3. Feeling not fully recovered at discharge (5 patient responses).
4. Cast complaints of pain or itching (4 patient responses).

In addition, four responses were deemed relevant to the research questions, but were only mentioned by a single patient. These were: having experienced a complication requiring return visit to ED, discharge process was long and inefficient, lack of instructions given, and continuity problems between what was told by doctor and nurse. Table 5.1 provides patients' responses to their experience with discharge from hospital to recover at home:

Table 5.1 Open-Ended Question Responses to Experience with Discharge Process

Response to question of experience with discharge from hospital	Frequency of mention among survey responses
Difficulty sleeping	10
Difficulties fulfilling instructions:	10
Confusion over follow up visits	2
Difficulty finding outpatient clinic, no map	2
Difficulty booking appointments	2
Could not find supply department for crutches	1
Pharmacy closed; difficulty getting medication	1
Difficulty in ADL	18
Long Wait times	6
Good or excellent hospital experience	5
Felt not fully recovered at discharge	5
Cast complaints: pain, itching	4
Communication and language difficulties with foreign nurses	2
Life changing leaving hospital	1
Difficulty with crutches	1
Burden to family	1
Feelings of guilt over accident	1
Home is better than hospital because of noise	1
Wished stayed in hospital longer	1
Discharge process long and inefficient	1
Doctor did not explain procedure details	1
Experienced complications requiring return to ED	1
Lack of instructions given	1
Too many doctor referrals	1
Physiotherapist not helpful	1
Ambulance always late or unavailable	1
Waiting for other physician specialists	1
Continuity problems; doctor says one thing, nurse another	1

5.2.2 Believes and faiths

Responses indicated that patients believed that Allah's will was done in this experience (5 responses), patients offered praise and thanks to God (2 responses), patients felt there were no "go backs" (2 responses), one suggested lighter plaster cast and one said it was important to fasten seat belt always and be more careful. Of these responses, the patients showed a level of faith and fatalism, but in a positive way in terms of accepting the situation and

maintaining praise to God, while also demonstrating acknowledgement of ways they could affect their own safety positively. Table 5.2 shows patients' suggestions for change.

Table 5.2 Suggested Changes

What would change	Frequency of mention among survey responses
Allah has decreed what he wills is done	5
Praise and thanks to God	2
There are no 'go backs'	2
Lighter plaster cast	1
Always you have to be careful	1
Always fasten seat belt	1
Nothing or I Don't Know	1

5.3 Description of Participant Sample in Phase Two (Nurses)

Participants in Phase Two of the study consisted of orthopaedic nurses from the same hospitals that participated in Phase One. All participants (n=10) approached by the researcher to participate in the study agreed. The interviews were conducted in English language for three expatriate nurses who their English is not first language and four Saudi nurses who spoke English fluently but not their native language, and the Arabic language for three participants who their Arabic as first language, and then they were transcribed and translated by the researcher into the English language. Pseudonyms were given to informants to ensure anonymity and privacy. These participants demonstrated a variety of experience levels, spread between 2 and 23 years of nursing experience. The nurses were a mix of OPD nurses, ED nurses, or both, and a mix of genders, with more males than females. Table 5.3 provides some general demographic characteristics collected from the orthopaedic nurses during the interview.

Table 5.3 Interview Participant Demographic Data

Demographic Characteristic	Frequency
Years as a nurse	
23	1
16	1
14	1
10	2
6	3
3	2
Area of nursing experience	
OPD	5
ED	2
Both	3
Gender	
Male	7
Female	3
Expatriates/ Saudi Nurses	
Saudi	7
Expatriate	3

5.4 Orthopaedic Nurses Experience with Discharge Planning

The initial part of semi-structured interview with orthopaedic nurses was to describe their experience with discharge planning. Overarching content was revealed that represents the perceptions of the group as a whole, relevant to the research question. Each of these content categories is discussed separately, using quoted examples from the interview transcripts to support coding development of the most common responses.

Category 1: In the discharge planning process, nurses navigate patients through discharge, providing the patient with follow-up appointments and discharge needs for home through an often complicated process of separate discharges from different specialists and care providers.

Category 2: The discharge plan is documented using the patient's medical record number and cast type and procedure, and includes detailed patient instructions.

Category 3: Patient instructions, often designed by OPD nurses, are typically given both in writing and verbally with involvement of the patient's family if possible, to support enhanced understanding by the patient and ultimately greater instructional compliance.

Category 4: Patient participations/compliance? with discharge instructions is problematic causing complications (swelling, cast complaints, and damage) and causing return visitation; however, returns and complications can be avoided with good casting and clear instructions.

Category 5: Noted occupational difficulties included anger or lack of patients' participation, need for more patient education, and difficult patient circumstances, such as obesity, mental illness, and other disabilities.

Category 6: Perceived inefficiencies of inexperienced/new nursing staff, coupled with lack of training for plaster casting nurses, as well as lack of staff communication and cooperation resulting in a lack of continuity for the patient.

5.4.1 Nurses navigate patients through discharge

Orthopaedic nurses offered their descriptions and perceptions of the current discharge planning process. Key common themes included that:

1. Patients are provided with appointments and needs upon discharge.
2. There is a complicated discharge process in which different departments discharge separately.
3. An examination by the doctor is required to cast.
4. Doctor writes final discharge.
5. There are no specific guidelines for discharge.

Table 5.4 Participant Descriptions of Discharge Process

Description of discharge process	Frequency of mention among interviews
Patients provided with appointments and needs upon discharge	4
Series of separate discharges	4
Examination by doctors, order to apply cast	3
Doctor writes final discharge during round	3
No specific guidelines for discharge	3
Discharge or admittance to ward	2
Cast instructions	2
Patients not specifically asked if they need anything	2
Referral to OPD	1
Consultations with occupational therapists	1
Home healthcare for elderly	1

The discharge planning was described by participants as providing the necessary information to patients in terms of appointments and care needs to continue upon discharge. For example, participant F commented, "[We] give instructions, appointments, supplies, and other requirements." During interview participant E the explained in more detail:

> When we finished applying we start by given patients their appointments, this x-ray, crutches, physiotherapist appointment, and other needs … we give all the paperwork to patient and he has to go first to appointment department to book appointment, then he has to go to pharmacy for his medication, then he has to go to supplies department if he needs crutches, then go to physiotherapy department to book appointment, for the next clinic appointment he has to go to x-ray department first before clinic to do the x-ray, because doctor need to see the x-ray for the same day of visiting. (Participant E)

The discharge process was commonly perceived by the participants as a complicated process involving a series of discharges, rather than a consolidated event. This was the first category evident in this content analysis. This process was explained by participant G as it relates to the multiple service providers, need for follow-up, and patient education needs:

> I called it series of discharge, not one discharge because they need episodes of discharge or more than one doctor to discharge the patient. Other doctor need to write discharge notes first then we have to talk to orthopedic doctor saying the other doctor discharge him can you do your discharge note, and so on. Every doctor gave him follow up appointment, including educational doctors. (Participant G)

> Those patients need educational appointment and what happened other doctor rely on orthopedic doctor to organize these appointment and orthopedic doctors rely on other doctors to organize these appointments, so patient discharge from here without educational appointment, it happened when they are busy here or sometimes doctor forget to give some of patients' needs or even follow up appointment. (Participant G)

As a result of this complicated process of discharge planning, participant F described the need to be considering the discharge process from the very beginning, at the time of admission:

> I think preparation for discharge should start from day of admission, because discharging patients sometimes can be very complicated especially if they need to be seen by more than one specialist. Other problems of discharge when discharge involve multi doctors so each doctors has to write discharge notes and sometimes we have to chase other doctor to discharge patients because that doctor discharge him and we waiting for your signature. (Participant F)

Before the patient can be discharged, the participants commonly noted that doctors must examine the patient and decide whether the patient can go home. Participant A stated, "Doctors will examine patients if they need any split or cast change." This was also noted by Participant B, who described the immediacy of the process initiation once the doctor gives the orders for discharge, "Doctors do rounds in the morning and if the doctor decide he [patient] can go home, we tell patient that he can go home" (Participant B). This immediacy was supported by Participant D as well, who added, "[The] same day the doctor does rounds and if he decided to discharge him, we ask him to collect his staff and leave."

The process was described as being completely dependent on the availability of the physicians, with no planning for discharge. Participant E noted the lack of guidelines for discharge, "There is none [guidelines for discharge] and it could be great if we could have one." Participant I explained in more detail the lack of guidelines and the dependency on physician orders:

> There are no guidelines for discharge to doctors or nurses or even patients. Also, there is a bed crisis in all wards, sometime if there is a medical patient coming from

> emergency they send him to surgical wards and other way around because there are not enough beds and this patient sometimes needs operation next day. (Participant I)
>
> Also the discharge decision is under doctors' order and doctors decide when and how to discharge which always doctors are busy and cannot see their patients on time … there is no specific time written for each case, doctors decide and estimate when and how to discharge patients and we follow doctor's orders. Sometimes doctors did not do their round for three days and patients are staying here three days extra without any point. (Participant E)

Given the complexity of the process, guidelines, as suggested by Participants E and I, would be extremely helpful to the nursing staff.

5.4.2 Nurses' thoughts of discharge planning

Beyond a mere description of the discharge process, participants also offered their personal thoughts on the process. Key common themes included

1. Efficiency of OPD and ED nursing staff
2. Difficulties with impatient or angry patients
3. Process is dependent on the skill level of nursing staff
4. Systematic process utilizing teamwork and hospital policy
5. Process is dependent on patient cooperation.

Table 5.5 provides the variety of participant responses, highlighting the highly common themes among the response types.

Table 5.5 Interview Participant Perceptions of Discharge Planning Process

Nurses' Thoughts on discharge process	Frequency of mention among interviews
OPD nurses more efficient than doctors	4
Problems with impatient or angry patients	4
Depends on nurses' skill level	4
Systematic?	3
Depends on patient cooperation	3
Comprehensive	2
Enjoys night shift	1
ED more efficient	1
Not always systematic depending on patient needs	1
Not so comprehensive; needs improvements	1
Takes too long to discharge	1

The first common theme was the efficiency of OPD nurses compared to the physician. This efficiency was perceived to be based on the comprehensiveness of the department in terms of nurses' ability to handle the discharge process. This was explained by Participant A and Participant D:

> It is comprehensive from here, OPD, because we do the discharge -from ED the doctors sometimes busy and do the discharge, but here in OPD nurses always do the discharge. … I mean nurses have more knowledge to do discharge and paper work then doctors, always doctor ask nurses about paper work and how to do things, we give patients their needs and we talk to them more. Doctors give only next visit and do not explain everything (Participant A)

> . … they [physicians] send it to us in OPD because as I said we are more knowledgeable about plaster cast and do it frequently, so after applying cast, after one week or two weeks they return to OPD by appointment …Doctors give nurses here all paperwork and ask nurses to do the plaster cast, I like it this way because if doctors explained to every patients we will not finish on time, so we will do the explanation during applying the plaster cast. (Participant A)

> ……from OPD always works because we are more knowledgeable in casting. From ED normally does not work because busy and sometimes doctors do the cast. (Participant A)

> From OPD I think they are the most expert plaster cast nurses because they specialize only in applying cast … from OPD they came to their appointments, we do the doctors order applying cast and give them their next appointment with instructions and then they go home, if we feel patient could not understand us after we do the cast, we normally gave them paper instructions (participant D)

Participant D also described this type of comprehensiveness from the ED, stating, "I think from ED is comprehensive because we give them instructions and we follow hospital policy and procedures (Participants D). Sometimes, impatient or angry patients are problematic to the discharge planning process. This was mostly felt to be due to impatience as the patient is moved from one specialist to another, and/or long waiting times. Participant A described it as, "Mostly, patients get angry with us very quickly, maybe because of their conditions, we are trying to keep patience." This was also discussed by Participants B and D:

> For example doctors sometimes refer patient to another specialist and we have to wait for other specialist next day to see him, sometimes patient here gets upset and aggressive when waiting a long time in emergency room, bed crisis here is a problem (Participant B)

> Some patients are incompliant… I think some patients get upset very quickly and some are unhelpful …as you know plaster cast restrains their movements and it is stressful to have a foreign body attached to you for long time, and of course I think the most difficult thing is dealing with aggressive patients or mentally ill patients (Participant B)

This efficiency of the process was commonly noted to be dependent on the nurse's skill level. Participant C stated, "It depends on nurse's technique and performance applying cast". Patient participation in treatments is another important aspect to efficiency, as compliance and nursing skill contribute to successful discharge and patient recovery. Participant D answered, [when does discharge planning works] "If they follow instructions and nurses do good plaster cast it will work." A key aspect of this is the ability of nurses to provide good instructions to the patient, which also depends on the patients' level of understanding. Interview Participant E described it:

> If nurses did not give good instructions or if patients did not understand the instructions or ignore the instructions will not be the right thing, as you know patients should look after their cast and we always ask them to do so, I think it depends on patients' level of understanding and family awareness. (Participants E).

Essentially, the efficiency and effectiveness of the process depends on nursing skill, and whether the patient understands and is willing to comply with the instruction. Interview Participant 6 summarized:

> It works if we give patients all their needs and we make sure they understand the instructions, and they follow instructions without any complications, it will work also if patient are well educated because less education could cause less understanding and less compliance. … [what do you mean by good cast?] If nurses applied a good plaster cast to patient, patient did not return here again even if in case of swelling because they are supposed to do first backslap and backslap cast can reduce the swelling, if new nurses or other nurses not plaster nurses do the plaster cast sometimes they return (Participant F)

Participants described a dependency on patient cooperation and compliance. For example, Participant C stated, "I think it depends on the patients' cooperativeness and compliance." Participant D agreed, while also noting the importance of the nurses' casting skills, stating, "As I said, if they follow instructions and nurses do a good plaster cast it will work."

A final category revealed in the interview data related to the participants' thoughts concerning discharge planning was the systematic nature of the process when they did it, which was noted by three participants. Participant F stated, "From ED we do step by step and it is organized when I am on duty." In more detail, Participant B contributed:

> The ED I think is systematic, there are two ways patients come here "OPD", one from ER "emergency Room" and one from dispensary. They normally come to the appointments section and book their appointments after we discharge them from here OPD, I am not sure in OPD if it is systematic but in ED I think it is systematic. (Participants B)

5.4.3 Nurses documenting discharge planning

A third category revealed from the interview data analysis was the documentation of discharge. Six of the participants directly stated agreement that the discharge plan was documented; however, how the documentation is completed differed by participant. Participants commonly noted key themes of the use of the medical record number to document the discharge plan, as well as the type of cast and procedures. Two participants said that the information is put into an online system as opposed to charts, and two participants described badge numbers not being documented with discharge. Therefore, key themes discussed here include the use of the medical record number for documentation, and the type of cast and procedures. Participants also noted the documentation of whether instructions were given to the patient. These themes are provided in Table 5.6.

Table 5.6 Discharge Plan Documentation

Discharge plan is documented	Frequency of mention among interviews
Medical record number	5
Type of cast and procedures	5
Patient instructions are documented	3
Put in online system and not charts	2
Badge number is not documented	2
Patient instructions are not documented	1
Appointments given	1
Time of application	1
Who saw the patient	1
Medications	1
If patient left with family member	1
Happy or unhappy	1

Key aspects of documentation were described as using the medical record number and the procedures given, as well as future appointments. Participant A noted, "We write on a special sheet their medical record number." This was supported by many of the other participants, including Participant B, who stated, "We have sheets to write only three things, 1- medical record number 2- procedures 3- appointment given." Participant D discussed the use of the computerized system for documentation using medical record numbers and type of cast. "We have a computerized system here, so we enter their MRN [Medical Record Number] in the system. I write their medical record number on a piece of paper … and what kind of cast I did" (Participant D).

In addition to the use of medical record numbers and documentation of procedures and/or type of cast, participants were asked if instructions were documented. Three participants noted the documentation of whether instructions were given to the patient. Participant G discussed, "We have to write [whether] instructions have been given to family or patient in nursing notes, how [we] saw the patients and the time, medication that was given and discharge with whom."

5.4.4 Orthopaedic nurses experiences delivering instructions

Building on from the notion of documenting patient instructions given, as a fourth thematic category related to orthopaedic discharge planning, participants discussed patient instructions and plaster cast instructions as part of the discharge process. The patient instructions category was further broken down into sub-categories of type of instructions, language of instructions, method of communication and language used, design of instructions, patient compliance/cooperation, comprehensiveness of instructions, and lastly, patient complications requiring return visits. Table 5.7 offers the variety of responses related to orthopaedic nurses delivering instructions to patients and the frequency of each type of response, allowing for a summary view of these findings.

Table 5.7 Orthopeadic Nurses delivering instructions to patients

Patient instructions	Frequency of mention among interviews
Type of instructions	
Written on paper	8
Verbal	7
Families involved	7
Doctor prescriptions for painkillers	4
Directions to pharmacies and x-rays are verbal	4
Casting instructions	1
Paperwork for next appointments	1
Language instructions are given in	
Arabic	5
Depends on patient understanding	5
English	4
Difficult with elderly	3
Design of instructions	
Instructions designed by OPD nurses	8
Instructions designed by ED supervisor	1
Patient compliance/cooperation	
No	7
Yes	2
Comprehensiveness of instructions	
Yes, are comprehensive	2
Yes, but need to update regularly	2
No, not comprehensive	1
Do not need to update	1

5.4.4.1 Nurses' preferences of delivering instructions

The patient instructions were most often given both verbally and in written form to support clarity and patient understanding, toward greater patient compliance. Participant H explained, "We give them first verbally then paper instructions; we have a number of discharge instructions, one for how to look after your plaster cast, one for medication, and one for emergency numbers." Participant B also described the use of both written and verbal instructions, stating, "We normally give them paper instructions and ask them to read them at their home." However, Participant C described a preference for paper instructions, particularly when there is any type of difficulty with communications. This participant stated:

> It depends, if I found it difficult to communicate because of language, I normally give them paper instructions. … If they are easy to talk with I give them both paper instructions and verbal instructions. I prefer to give them paper instructions …because if you work here for so many years you start to get bored from talking to patients, so I give them paper instruction and they can read it at their home. (Participant C)

Another reason offered for paper instructions over verbal instructions was the lack of time, often the results of being short staffed. Participant D explained:

> We are short of staff and we had no time to explain to each of them, we normally give them paper instructions, I always give them paper instructions because they can read it at the comfort of their home and not forget it. (Participant D)

Instructions are provided in English as well as Arabic, when necessary. Participant G noted, "We give them both verbally and written instructions. Sometimes patients cannot read Arabic and we give them in English." The distinction between participant preferences for use of verbal or written instruction was detailed by Participant H, who acknowledged that verbal instructions provide more understanding if you speak the same language:

> We give them first verbally then paper instructions, we have a number of discharge instructions, one for how to look after your plaster cast, one for medication, and one for emergency numbers (Participant H).

> … as I told you earlier we give them verbal instructions and we prefer verbal because they understand more (Participant H).

> … [so do you prefer to give them verbal instructions?] if they speak the same language I prefer to give them verbal instructions because they throw away paper instructions or they do not like to read instructions. (Participant H)

Another strategy used for giving instructions was to involve the family members. Family members of patients sometimes offer added understanding to the patient. Participant E described the use of family involvement as well as providing verbal and paper instructions: "We normally involve the family with patients and give them instructions to read at home. …I give them verbal instructions if I have time, and paper instructions if it is busy." This was repeated by Participants A and I, who explained family involvement in instructions. The following examples demonstrate the use of family to assist in understanding the instructions:

> We are also trying to involve their relatives, parents, brother, sisters and families, we ask them to help their family member. … older people always come with family so we give the information to their family instead. (Participant A)

> We normally involve the family with patients and give them instructions to read at home….give instructions to family too, but here careless family is a big problem, mothers and father needs to pay more attention to their kids, because we see lots of children hit by cars. (Participant E)

Participant I discussed the need for clearer instruction for the elderly and taking advantage of family to assist with instruction:

> Elderly people should have clearer instruction with more details. During my past 14 years, I never saw an elderly person by themselves, they are always with family member, when we discharge elderly person from the hospital they normally have family member with them otherwise we are not eligible to discharge them, we cannot leave them on the street. (Participant H)

The type of instructions given were described by participants to include the doctor prescribed pain medication, and verbal directions to x-ray or pharmacy. Participant H explained, "We do not have instructions about how to reduce pain, but doctors write them pain medication before they are discharged." Therefore, as noted by Participant A, "If patient needs a pain

killer, he should ask doctor, as you know we nurses cannot prescribe medication to patients." This was also noted by Participant E, who agreed that the nursing staff did not manage pain, "Pain killer should doctor prescribe to them, and we do not manage pain." In addition to the requisite physician pain medication orders, the participants commonly described providing directions to the pharmacy or other places for the patient. Participant E detailed, "We show them from there or this way and it is easy to find…We tell them where it is."

5.4.4.2 Nurses design discharge instructions

When asked about who designs the instructions, the responses highlighted the role of the OPD nurses in designing the material. Participant A responded to the question of who designed the material with "One of our orthopaedic cast nurses." This response was common to nearly all the participants.

5.4.4.3 Comprehensiveness of instructions

Among the participants who discussed the perceived comprehensiveness of the instructions, the participants generally felt the instructions were comprehensive, but that they needed updates occasionally to remain current. Participant B noted, "I think it is good instructions but sometimes they need update." However, Participant G added, "If we need to add new instructions we do the updating." Participant H discussed the lack of comprehensive instructions for each type of injury; they are rather more basic. This participant explained:

> For nurses we have only the basic instructions how to look after your plaster cast only. I mean we do not have comprehensive instructions for each injury case such as limb or head in one folder that we can access anytime. (Participant H)

5.4.4.4 Patient compliance with discharge instructions and complications requiring return visitation

In terms of patient instructions, a significant theme was revealed in the importance of patient compliance and cooperation. This cooperation was felt to be critical to positive outcomes and reducing the occurrence of a return visit. According to Interview Participant G, "To be

honest, [the] majority do not follow instructions." When the patients do not follow instructions, they end up returning to have the cast replaced or repaired, as noted by Participant F:

> What happened here, patients sometimes do not follow these instructions and return with cast full of water, we saw lots of damaged cast within one week of applying because they were playing football with the cast. (Interviewee F)

Participant A described this noncompliance to instructions using a specific example:

> Unfortunately, patients do not follow instructions, and they come here again for changing cast or damage cast. [For example] ….. last night I was on duty overtime because one of the plaster nurses was absent, I did a full leg plaster cast for a big man. I spent around 30 minutes casting him and it was very difficult to apply plaster cast on him, and when I finished, I gave him all instructions, and he went home. Sadly, I saw him this morning, he wants to change the cast because it was wet, I am very sure I told him do not wet your cast and look after your cast. (Interview A)

The non-participation in discharge instructions extended beyond cast care to follow-up treatments and instructions, appointment, and cast removal. Participant C described these different aspects of departure from the instructions, noting, "We have lots of patients who are not following treatments instructions… Sometimes they do not come to their appointments, they remove the cast by themselves and do not come here again."

The lack of patient compliance with instructions can also lead to return visits due to cast damage or other reasons for return. Participants noted that returns often can be prevented with good casting and clear instructions (4 participants).

> If we do the cast professionally from one of our plaster nurses and give them good instructions, they do not return, but sometimes doctor do the cast and they are not good enough applying cast, [or] sometimes nurses are new as I said before. (Interview B)

> It works if we give patients all their needs and we make sure they understand the instructions, and they follow instructions without any complications … If nurses applied good cast to a patient, patient did not return here again, even for a case of swelling because they are supposed to do first backslap and backslap cast can reduce the swelling, and if new nurses or other nurses are not plaster nurses and they do the plaster cast sometimes they return. (Interview F)

In addition, two participants noted that returns may be from other complications not related to the casting. For example, Participant B asserted, "If we do a good cast, they do not return because of cast complication, they will return for something else." Table 5.8 provides a review of this data, highlighting the commonality of themes.

Table 5.8 Patient Complications Requiring Return

Complications requiring return visitation	Frequency of mention among interviews
Return visits for cast damage	4
Returns can be prevented with good casting and clear instructions	3
ED or doctor required	2
Returns are frequent regardless of casting job	2
Reasons for return:	
Cast complaints	6
Swelling	6
Water or sand damage to cast, tidiness	5
Pain, need painkillers	2
Discoloration or abnormality	2
Want sick leave	2
Fever	1
Trouble sleeping	1

Participants also discussed the multiple types of complications requiring a return visit, which included swelling, complaints about cast, damage to cast, pain, and discoloration or other abnormality. For example:

> Different patients have different reasons to return to ED, the most frequent reason for patient return to ED is pain and cast complications, such as swelling and cast tidiness. … Of course sometimes if we do not do the plaster cast properly, patient returns to emergency again. (Participant F)

> Most of the time they return because of cast complications, some casts have sharp edges needing to be trimmed. In general if patient does not feel comfortable with cast on they normally return to ED (Participant E)

5.4.5 Difficulties in being an orthopaedic nurse

The fifth thematic category related to the discharge process was formed from orthopaedic nurses related to occupational difficulties. Common responses included communication barriers, angry or noncompliant patients, the need for education, and casting obese, mentally ill, physically disabled, or elderly patients. Lastly, wetcasts were also noted as a difficulty. Table 5.9 presents the variety of participant responses and associated frequencies among the interview sample.

Table 5.9 Occupational Difficulties

Occupational difficulties	Frequency of mention among interviews
Communication or language barriers	7
Angry or uncompliant patients	6
Need for education	5
Casting obese patients	4
Mentally ill or physically disabled patients	4
Children victim to parent carelessness	2
Long lines at ED	2
Overcrowding	1
Long hours	1
Supply difficulties	1
Plaster residue	1

5.4.5.1 Nurses' experiences of communication barriers

The participants discussed problems with communication and language barriers, especially with elderly patients and those who speak different languages or dialects.

> Also, communication is a big problem for us, we speak broken Arabic and they speak broken English, but we are trying to convince them that we are doing our best. (Participant A)

> We have a problem to communicate with older patients, because we do not understand each other. And most of them do not speak English. (Participant B)

The following examples from an orthopaedic nurse who speaks native Arabic demonstrate this barrier:

> In Saudi we have different dialogue and accent, for example, north region have different dialogues than south region, most of the time we are have no problem. (Participant F)

> If they speak Arabic, we can explain to them more and the communication will be better, but if they are non-Arabic speakers we explain to them in English and we give them instructions in English too, every ward has an interpreter for non-Arabic speakers; however, sometimes we do not have an interpreter and we have to do their work too. (Participant H)

5.4.5.2 Difficulties with angry patients and patient participations

Another barrier discussed by the participants in this study was dealing with angry patients or patients' participation in discharge instructions. Participant A explained, "Mostly, patients get angry with us very quickly, maybe because of their condition, we are trying to keep patience." This was also described in detail by Participant D, who noted how it is difficult to keep some patients happy, how some patients remain irresponsible, and some are aggressively upset. This participant described:

> Some are difficult to be happy. Some patients are incompliant and irresponsible, also there are no protections from aggressive patients. I think some patients get upset very quickly and some are unhelpful. …[so patients always get upset very quickly here?] as you know plaster cast restrains their movements and it is stressful to have foreign body attached to you for long time, and of course I think the most difficult thing is dealing with aggressive patients or mentally ill patients. (Participant D)

In addition to the patients themselves, another difficulty was with the patient's family, some being very demanding with high expectations, and impatience. Participant G explained:

> I have sometimes a difficulty dealing with some high demand and expectation patients. Some are nice and some need more patience to deal with them, especially if they have family and the family member thinks we are in five star hotel, they think we can do everything and provide everything for them. … There is no trust here between family and hospital staff, so the family has to watch everything you are doing, of course not all of them - some. (Participant G)

Another issue related to noncompliance is self-removal. Participants described how patients may remove the cast on their own and not return for a proper follow-up.

> They remove the cast by themselves and do not come again here. …[how do they remove it?] with screw driver and hammer. (Participant C)

This type of lack of participation may result in additional complications, as described by

Participant G.

> They return to ED and some, they remove their cast by themselves and do not come here, especially if they live far in rural areas, a few months later they return with more complications such as limping because of the uneven length of their legs. (Participant G)

5.4.5.3 Obese patient needs more time and has physical demands

Another area of difficulty was noted to be working with obese patients in casting. These patients take more time and physical demands in trying to meet their needs. Participant A noted, "We have problem casting obese patients because it can harm your back and your body." Sometimes this work requires additional support from other nursing staff, as suggested by Participant B:

> Sometimes we have difficult patients to apply the plaster cast on them, for example obese patients or patients difficult to speak with, when I am by myself I cannot lift up and hold their hand or legs for ten or fifteen minutes and at the same time apply the plaster cast, I need someone to help me holding their hand or legs, then I can apply the plaster cast. (Participant B)

5.4.5.4 Patient mental illness or disability is challenging

As with obese patients, patients with mental illness or other disabilities can also be challenging, particularly in terms of dealing with aggressive behaviour or physical limitations. Participant D stated, "I think the most difficult thing is dealing with aggressive patients or mentally ill patients." Participant E offered another example, "Also, and most importantly we having problem if patient are disabled whether mentally or physically."

5.4.6 Nurses' perceived efficiencies and inefficiencies in the discharge planning process

Participants offered perceptions of both efficiencies and inefficiencies im the process during the interview discussions, forming the sixth major category related to the OPD discharge planning process. The interview data supported common perceived inefficiencies of a lack of

nursing training for plaster casting, inexperienced nursing staff, lack of staff communication and cooperation, lack of continuity for patient, ED issues, doctors being pressed for time, overcrowding and staff shortages. In terms of efficient aspects of the process, only three references were made, which included cooperation among nursing staff, the OPD, and effective patient communication. Table 5.10 summarizes the different response types, highlighting common response themes.

Table 5.10 Perceived Efficiencies and Inefficiencies of Discharge Process

Inefficiency/Efficiency	Frequency of mention among interviews
Inefficient aspects of process	
Lack of training for plaster casting for nurses	6
Inexperienced new nurses	5
Lack of staff communication or cooperation	4
Lack of continuity for patient	4
ED	3
Doctors pressed for time	3
Busyness of nurses	2
Overcrowding	2
Short-staffed	2
Patients' needs often forgotten	2
Unscheduled patients	1
Long waits	1
Efficient aspects of process	
Nurse cooperation	2
OPD (outpatient Dep)	1
Effective patient communication	1

5.4.6.1 Nurses' perception of inefficient discharge aspects

In terms of the inefficient aspects of care, nurse skill level and training was noted, as experience and skill are a factor in efficient discharge planning. Not every nurse can be highly experienced and skilled as there will always be new and training staff. Participant B described a new department that is staffed with new plaster nurses. This participant stated, "We have new department most of Saudi plaster nurses [who] are still new and they [are] still

learning. They've been here for less than 6 months." Interview Participant A explained this training process:

> Of course sometimes nurses do not have enough experience in plaster cast, as a result they keep coming to ED to change the cast or reapply the cast or fix it sometimes… We have some new nurses, they need more time to know how to apply plaster cast and to communicate with patients. … They learn here, we train them here for three months. … We do lots of casting every day. … They will learn with time.1

These new nurses need training for applying a plaster casting. However, training was considered by most of the participants to be lacking, representing an inefficiency of the process. For example, when asked if they have any competency or regular training for how to apply plaster cast and complications or regular meetings of some kind, Participant F simply stated, "No, we do not have any." Participant D agreed when asked if during the last six years, any training or workshops were available in plaster casts, responding with eagerness toward the idea of training; "I have not had any, but I am willing to go if there is any." As another example participant C described this lack of professional development:

> There are no extra courses for applying plaster cast or if there are, we have to pay for it, also there are no rewards for good cast or bad cast, so some of them just want to finish their job and go home. (Participant C)

Another perceived inefficiency is a lack of staff communication and cooperation. According to Participant C, for example, "Every department has a different policy and it is busy here and we have lots of patients who do not follow treatment instructions". The lack of communication and cooperation can lead to a lack of continuity of patient care, such as was described by Participant G:

> The issues are, for example, if patient is admitted through Emergency Department with a fracture, the patient will be under the orthopaedic doctor. Some of these patients have other issues, for example diabetic or heart problems. If the orthopedic doctor knows he has another medical issues, he [will] transfer him to cardiology doctors or medical doctors; in this case, the orthopaedic doctor will have difficulty discharging the patient from the hospital and follow up [with] him, because he needs a number of doctors to follow. In this case, patients are confused who is doing what and who is deciding what; we work here and get confused sometimes of who is supposed to discharge this patient first and last. (Participant G)

5.4.6.2 Nurses' perception of efficient discharge aspects

Nurse cooperation was noted by the participants as an effective aspect of both casting and discharging. This cooperation was perceived to assist in both time efficiency and in quality of casting.

> [The] discharge system works if nurses have enough time and work together helping each other, they will finish fast and everything will be good. (Participant B)

In other cases, cooperation was noted to be critical in difficult jobs, such as casting of obese patients, as described by Participant D:

> When we applying plaster cast sometimes we need two or three nurses to help holding legs or heavy hands especially obese patients, and children, so one plaster cast nurse applying cast cannot be enough. (Participant D)

5.5 Nurses Experiences with Fatalism

The initial part of the semi-structured interview with orthopaedic nurses was to describe their experience and perceptions of fatalism. Several overarching themes were revealed that represent the perceptions of the group as a whole in response to the research question. Each of these thematic categories is discussed separately, using quoted examples from the interview transcripts to support theme development of the most common responses.

Category 1: The use of Fatalism (according to Allah's will) to escape responsibility

Category 2: Perceived reasons for accidents seen as a combination of both lack of awareness of and recklessness with regard to traffic rules with a lack of enforcement, and in contrast, personal beliefs of protection from harm through good works.

Category 3: Perceived misinterpretation of Fatalism and the failure to use reason, demonstrated by reckless behaviours and putting life in danger.

Category 4: Do not generally discuss fatalism with patients.

5.5.1 Nurses' thoughts on faith and fatalism

The first cluster of themes related to fatalism was revealed from participants' thoughts and perceptions of faith and fatalism in general. The common key themes include:

1. Everything according to Allah's will
2. Application of fate versus responsibility
3. Acceptance of the predetermined
4. Working for destiny
5. Controlling fate through good actions.

Table 5.11 provides a brief summary of the various perceptions of faith and fatalism shared by orthopaedic nurses participants, highlighting the most common responses as key themes.

Table 5.11 Nurses Perceptions of Faith and Fatalism

Thoughts on faith and fatalism	Frequency of mention among interviews
Believing that everything happens by Allah's will	5
Use faith in fatalism to escape responsibility	5
Faith can make them strong, happy, accepting, and forgiving	4
Necessary to accept the predetermined	3
We must work for destiny	3
Can control fate through good actions	3
Time of death will come	2
Faith heals only when you take care	2
Bad things don't happen because of fate	2
Everything for our benefit	1
Allah is only in charge of good things	1

When asked to describe their thoughts on faith and fatalism, participants explained the notion of fatalism in relation to faith and Allah's will. Participant H, for example, explained, "Everything in life is determined before we were born, as you know, faith in Saudi is essential for our daily life." Participant D further explained the Muslim faith and the connection to Allah's will and destiny:

> As a Muslim we have to believe in fate and accept what is predetermined by Allah….as a Muslim it is important to accept Allah's will, Allah said in Quran "*all things we created with predestination*'' (The Moon 49), and also Allah had determined when we are going to die and where, Allah said also "'*no soul can ever die except by Allah's leave and at a term appointed''* (Fussilate 145). … Destiny is already written by Allah and we have no control over it but we have to work for it, it is true that we have not control over our destiny but if we do good deeds then we have a good destiny. … yes I believe all things were predetermined by Allah. (Participant D)

Similarly, Participant E expressed personal belief in the will of Allah and how that relates to accidents and accepting God's will and destiny (fatalism).

> I believe everything is in Allah's will … [What do you think of fatalism and patients who believe in faith?] In Hadith, the prophet Muhammad said when stricken with a mishap "*Allah has decreed and what he wills, he does",* he also says ' Allah is sufficient for me, and how fine a trustee (He is)". As Muslims, we have to accept God's will and Muslims here accept the incident as their destiny, written by Allah before incidents happened. (Participant E)

Fatalism specifically was defined by participants with a focus on God's providence, both good and bad, and everything being controlled or predetermined by Allah. Participant F noted, "Fatalism is believing in everything controlled by Allah and Allah determined things before it happens such as life and death." This was supported by Participant G, who stated, "Fatalism as Muslim according to prophet Muhammad is to believe in Allah, his angels, his books, his messengers, the last day, and the believe in providence both its good and bad. (Participant G)

When participants discussed their perceptions of faith in incidences of accidents and problems, the responses revealed the perception of faith as both a positive influence, as a healing influence that can make people strong and good, as well as a negative influence, in terms of an overreliance on fatalism, and use of fatalism to escape responsibility. The following examples demonstrate this notion of an imbalance between fate and responsibility, suggesting a misperception of fatalism. Understanding fatalism in this light, it does not serve as a barrier to treatment, only an excuse for a fault.

> Allah asked us in the Quran to look after ourselves and not to cause any harm to our body or anyone, but sometimes with low educated people they misunderstand what faith is in Islam. For example it is absolutely wrong to drive at high speed and believe it Allah's wish because Allah said in the Quran ' *and make not your own hands contribute to your destructions; but do good for Allah*…" (The Cow 165). (Participant D)

> …..If we understand what real fatalism means it would not be a barrier for treatments, I think they purposely making excuse for not coming to their next appointment or do not want to follow instructions and they say if Allah's want it I will follow instructions. (Participant D)

> However, we have to understand that we should work for reasons to make things happen, I mean we should not harm ourselves and say God's will, in fact, it is his or her will, also we should use faith in accepting things out of our hands like death or losing family. …but also you have to wear a seatbelt and take care whenever you are. (Participant E)

> Because they do not want to face the reality and truth of it that it is their mistake, they making excuses only for their fault. … For example when we give plaster cast instructions, some patients say Inshallah I will follow the instructions with shaking heads, means they are not going to follow instructions, here work as obstacles. Accepting what happened from Allah believing it is the best of Allah to want it for me, bearing in mind taking care of myself and others around me, is a healing example. (Participant G)

In contrast, participants also described the good that can be supported by faith. Participants described how faith can make one stronger. Participant C described a particular incident with a patient who refused pain medication, believing that Allah would protect him and he completed the treatment without the medication.

> I think it can be good and it can used for bad, it is good because they make them strong inside their heart for example a guy with distal radius fracture came to ED and he refused to take morphine, he said I will not feel the pain because Allah will protect me, we did the treatments without morphine. (Participant C)

Participant D described how faith can support confidence and happiness, as well as forgiveness.

> I am happy in life and I think faith gives a Muslim confidence and happiness, having faith does not mean I have right to be careless and say Allah's will protect me, having faith means happiness in life. … it is good to forgive each other, and I have seen many accidents that they forgive each other like my father's situation, it is written by Allah and we cannot control it, we only can take care on the street, faith people here tend to forgive when you mention Allah's name. (Participant D)

Finally, faith was described as a healing component in that it supports acceptance in loss, but also can be a barrier for those who misconstrue the concept. Participant E explained the difference between a positive attitude of Inshallah and a negative attitude.

> We should use faith in accepted things out of our hands like death or losing family. … I think it is healing for who understand what fate means and a barrier for young who misunderstand this concept, for example: if I say: Inshallah you will succeed in your life and study, I use a fatalistic phrase in a positive attitude, another example I say: I will late for work and Inshallah things will be ok., I used fatalistim in negative attitude. You see the difference! (Participant F)

5.5.2 Perceptions of evil eye in injury

Within the discussion of faith and fatalism, the concept of the evil eye as reason for injury was addressed by the participants, forming the next thematic category. Although three expatriate participants expressed having no knowledge or understanding of the concept of the evil eye, five participants were able to offer their perceptions and belief or disbelief in the concept. The key common theme in this cluster of themes was the understanding that, if one believes, one can be protected from evil eye by good works, prayer, and generally following the Quran. Table 5.12 presents these findings with the associated frequency of mention among the different participants to support theme development.

Table 5.12 Perceptions of the Evil Eye

Perceptions on evil eye	Frequency of mention among interviews
Can be protected from evil eye by good works, prayer, following Quran	5
Don't know or unsure what it is	3
Belief that is real	3
Don't believe in it	2
Affects depending on the extent of the person's belief in it	2
Majority of people believe in it	2
Can damage everything in your life	1
Some see it as fate, others as magic	1

Participants discussed the prevalence of the belief in the evil eye and that one can be protected from it. Protection was mentioned in the form of prayer, good deeds, reading the Quran, and donations, for example. The following three examples demonstrate these ideas in slightly different ways, but the similarity in the concepts is noted:

> The majority here believe in evil eye, if they are skeptical about this person that he has a strong evil eye they ask him or her to say Allah's name or other things… [such as,] you have to drink same bottle of water he or she drank from to be protected from evil eyes … because you need something of his remaining to protect you from evil eyes. … [Those] who pray five times a day on time especially morning prayer, he or she will be protected, also if you have Quran verses behind your care you will be protected too, so if you do these things you do not need any remains from him. (Participant D)

> Evil eyes will not happen to you if you do good deeds and pray to Allah, we know in Islam evil eyes is truth but prophet Muhammad said protect yourself from evil eyes by reading some versus of Quran and you will be fine and nothing will happen to you. (Participant H)

> You work in reason and you should be good, for example be careful all the time at home and when you are out if you do so you should be protected, also making Dua is important, which is asking Allah for happy life and protection. … donation to charity is also important to protect yourself from evil. I heard some people say we almost had an accident and Allah protected us, so I remember a couple of days ago I donated some of my money that's why I was protected. (Participant I)

5.5.3 Personal perceptions of the reasons for accidents

Also related to the discussion of faith and fatalism were participant responses related to their personal perceptions with regard to the reasons for accidents and injury. Among this sample, key themes highlighted causes that included:

1. Lack of awareness and respect for traffic rules and recklessness
2. Allah's will
3. Lack of enforcement of regulations
4. Protection from harm by Sadaqah (charity)
5. Belief in Inshallah (Allah's will).

To illustrate the variety of perceptions offered by the participants, Table 5.13 details the response types and frequency of the response type. This aids in the determination of themes through visualization of the highly common response types.

Table 5.13 Participants' Perceived Reasons for Accidents

Reasons for accidents	Frequency of mention among interviews
Inshallah (Allah's will) Personal belief in protection of Allah in accident	6
Lack of awareness of traffic rules and recklessness	4
Lack of enforcement for regulations	3
Personal belief that Sadaqah can protect you from harm	3
Neglect of proper car maintenance	2
Poor regulations, no consequence	2
Personal belief in Destiny	1
No safety features	1
Evil eye / Personal belief that evil eye causes accidents/injury/problems	1
Lack of warning signs	1
Stress	1
Poor road design	1
No reason	1

The first key theme with the most common responses (participants H) was a lack of awareness for traffic rules and recklessness. For example, Interview Participant C responded, "People do not have awareness of traffic rules… [for example] teenagers easily can buy a new car and over speed." Participant 5 cited the lack of traffic system and safety features; this participant noted both the need to follow rules for safety (like wearing a seatbelt), but also believing that following the proper faith rules and the Quran will ensure nothing bad will happen to you.

> Because there are no obvious systems in traffic and the street does have any safety features. … You have to believe in Allah first and his power, prophet in his Hadith and Quran said if you do these things nothing bad will happen to you, but also you have to wear a seatbelt and take care whenever you are. (Participant E)

Some participants, such as Participant F, discussed accidents in terms of punishment or protecting because of good deeds, although also noting that the individual has control over following the rules of the road and not speeding. This participant explained:

> If we do evil things then Allah will punish us here in this world before the next world, like a road accident. … They have the control not to over speed and follow road rules, but we have to remember that everything will be done by Allah's will, for example if something is written in our fate, like disease or any other loss like road accident, these

> things just take shape. … making a sin leads to an accident and bad luck, also parents' wishes make a different in protecting people from harms, respecting the elderly and looking after them saves you from harms, sometimes we make mistakes while driving but we are saved due to these things. (Participant F)

In contrast, Participant E focused on the careless acts of the individual as the cause of the accident, emphasizing that safety is not enforced:

> People here are not to wear a seatbelt when they are driving because there is no enforced policy, I am seeing on the street everyday children setting on their mother lap or jumping on the back seat without child seat or any kind of protection, that's why we see here lots of trauma to children, I have applied a plaster cast for thousands of children due to accidents. In Western community they call it child abuse (Participant E)

Similarly, Participant G suggested, "It happened because you did not pay more attention to road or injury, or happened because of no reason." Finally, Participant F offered a personal experience demonstrating a belief in fatalism, while at the same time suggesting that the fate for those not wearing a seat belt or following safety rules is a different source of fate. Participant F recanted:

> In 2007 I was with my friends and we were driving from Karis coming from Jobail city, it was raining and we were driving about 140km/h. as a guy was trying to over take us and we hit him from the rear then he rolled over, we had broken ribs, it was not my day, and we all were ok. Allah saved us, Alhamdulillah (thanks God). … (However) death is fated for these who break safety rules or are not wearing a seatbelt, these are sources of their fate, sources and working on reasons for protections could have positive fatalism. (Participant F)

5.5.4 Misinterpretation of the real meaning of fatalism

Five participants also discussed the potential for misinterpretation of religion based fatalism and protection. In some cases, discussing their thoughts on teenagers who demonstrate risky behaviours, participants expressed their personal beliefs in terms of a misinterpretation of fatalism and protection from Allah such that these individuals often fail to value their lives and use reason and caution to prevent injury, relying on fatalism. Table 5.14 summarizes these findings.

Table 5.14 Perceived Misinterpretation of Fatalism

Misinterpretation of Fatalism	Frequency of mention among interviews
Misinterpretation of Fatalism and Inshallah / failure to use reasons	5
Do not value their lives	4
No fear of death	3
Perceived immunity from death or injury	2

The difference these participants are expressing is between claiming the will of Allah in the context of foolish or careless behaviour, and using appropriate caution and following designated safety rules but accepting the will of Allah when something happens. Participant B noted, "I think Allah gives us a brain to think what is right and what is wrong; we should take precautions everywhere." This notion was supported by Participant D, who described how Allah asks us to care for ourselves to avoid harm:

> Allah asked us in the Quran to look after ourselves and not to cause any harm to our body or anyone, but sometimes they misunderstand what faith is in Islam. For example, it is absolutely wrong to drive at high speed and believe it Allah's wish, Allah also said in the Quran ' *and make not your own hands contribute to your destructions; but do good for Allah*…" (The Cow 165). (Participant D)

Similarly, Participant H made the distinction between faith and suicide, using this example as a means of demonstrating this notion:

> However, these who over speed and say I did the morning prayer and Allah will protect me, this is not faith, this is suicide, Allah said in Quran ' *and do not kill yourself nor kill one another'*. So Allah is asking us not to suicide or kill other people on the road, so why those who over speed do not use these faith verses instead! (Participant H)

Finally, participant G detailed an example of emergency patients claiming destiny, but in actuality, speeding and making poor decisions causing the accident, demonstrating the misinterpretation of fatalism used in these circumstances.

> I saw patients come to emergency with accidents and when we asked them what's happened the first thing they say it is my destiny, then we asked them how it happened they say we were over speed and start to explain, then the doctor asks them why do you over speed? They say it again, it is my destiny we cannot change it, it happens already. (Participant G)

> ……So doctor said: do you know over speed could kill you, they say, it is Allah wishes what we can do!! They do misinterpret what fatalism is and when it is used, they throw every bad thing to Allah's wish and forget what they did to themselves. [They misinterpret fatalism] because they do not want to face the reality and truth of it as their mistake; they are making excuses only for their fault. (Participant G)

This misinterpretation may stem from a lack of value placed on theirown lives, particularly the younger age groups. According to Participant E, "People here have no appreciation of life, especially the young group." These younger people reportedly lack a fear of death, with a perceived immunity to death, as they claim Inshallah. According to Participant B:

> But teenagers sometimes drive like crazy and they say Inshallah nothing will happen to them. … I try to tell the younger one that if you over speed you will die but they reply if Allah wants us to die we will die if he does not we will not die, and they say Inshallah we will not die because I pray on time. (Participant B)

5.5.5 Talking to patients about fatalism

Although only a few participants discussed if and how they talk to patients about fatalism, the information is key to understanding how nursing can incorporate this information in patient communication. Two participants believed that there was no use discussing their concerns with the patients, as they believe they will not listen. Participant H explained, "I don't because you cannot convince them, it will be endless discussion." In addition, Participant G offered, "It would be endless discussion without any point, wasting time only, when doctor take their history of what happened, we listen or sometimes we read the doctor's notes, in fact, patients do not want to discuss how it happened."

Another participant claimed to explain the notion of fatalism as a concept in times of crisis to help patient's families and loved ones cope.

> Yes I talk to them if they are in crisis situation and tell them to accept Allah's well, [can you give me example] it happened here patient came with car crash and some of the family member were announced dead, so the other family members were crying and we sometimes have to talk to them to reduce the tragedy and make them calm, so we have to say things such as Allah has decreed and what he wills, he does, so like these sentences from Hadith they get calm and reduce the crises. (Participant F)

Finally, language barriers also were noted by a participant in making discussions about fatalism difficult or impossible. Participant C admitted, "I don't [discuss fatalism with patients], as you know I am not from here and I don't speak good Arabic."

5.6 Conclusion

Patients with limb injury in Phase One, the open-ended questionnaire, offered their perceptions and suggestions for discharge planning: a comprehensive data analysis finds that patients experience difficulties in attempting to fulfil discharge process and experiences difficulties in ADL. In Phase Two, the semi-structured interview with orthopaedic nurses, nurses have described their experience with discharge planning and perception of fatalism. The participants offered their own descriptions of discharge planning and fatalism, their perceptions of the discharge planning process, occupational difficulties, patients' instructions, which includes patient participation issues, perceived efficiencies and inefficiencies, perceptions of the evil eye and personal perceptions of the reasons for accidents, and talking to patients about fatalism. This will be discussed further in Chapter 6.

CHAPTER SIX: DISCUSSION

6.1 Introduction

As discussed in the first chapter, discharge planning is a complex matter and requires a multidisciplinary approach involving the cooperation and coordination of services inside and outside the hospital. This study was designed to seek a better understanding of the process and clinical outcomes of discharge planning for non-major limb injuries, and to understand the extent of fatalism and how this impacts participation of care. In order to meet the study aims and objectives and to answer the research questions, data were collected through questionnaires that were distributed to patients with limb injury (Phase One), followed by semi-structured interviews with orthopaedic nurses (Phase Two). The research environment selected was the outpatient orthopaedic clinic and ED for the both phases, and the period sampled included the months of April 2013 to August 2013. Ethical approval was provided by MIGR of Monash University and participant hospitals.

Research evidence, as discussed in Chapter Two, suggests that systematic and evidence-based practice of the discharge process supports the likelihood of a discharge without adverse events. In contrast, patients who are discharged with unmet needs are more likely to develop complications from existing problems and often require readmission to the hospital; therefore, it is important to meet the needs of these patients during this transition through the design and implementation of a discharge model for limb injury patients, which would provide collaborative quality improvement across the healthcare system in SA. The results of the statistical analyses of data were reported in Chapter Four, followed by the qualitative findings in Chapter Five, which presented an analysis of the emerging themes. Finally, in

Chapter Six, the key findings and implications of the study are here identified, toward the design and presentation of a model of discharge planning.

6.2 Addressing the research questions

This research explored the discharge planning process and models for non-major limb injury, incidence of and factors associated with unexpected returns to the ED, and patient and nurse reliance on fatalism and acceptance of God's will. Specifically, the study was guided by the following three research questions:

1. What are the current discharge planning models for non-major limb injury and what opportunities exist to enhance those models for the management of one of SA's most significant health issues?
2. Are there any correlations between any of the demographic variables, sources and type of discharge instructions, and unplanned return to ED?
3. When faced with injuries, to what extent do Muslims rely on fatalism and how does this impact on participation of care?

6.2.1 Research Question One

The first research question asked: What are the current discharge planning models for non-major limb injury and what opportunities exist to enhance those models for the management of limb injury, one of KSA's most significant health issues? It was hypothesized that there was a lack of efficient systems and services management to support effective care for the majority of patients with limb injuries. To address this question, the findings from the qualitative interview data analysis obtained from the sample of nurses were used to describe the existing discharge planning system and identify inefficiencies and problematic areas of the existing system. In addition, patient responses to open-ended survey questions with

regard to their discharge experience were used to support the findings offered by the nursing sample.

The nurse participants in this study described current discharge planning as a complicated process in which the nurses navigate patients through discharge, providing the patient with follow up appointments and discharge needs for home through a process of separate discharges from different specialists and care providers. The discharge plan, which was reported to include detailed patient instructions, is documented via the patient medical record number and cast type. Focusing on the patient instructions, these were reportedly most often designed by the OPD nursing staff, and were typically offered to patients both in writing and verbally. Nurses discussed the involvement of the patient's family when possible to support enhanced understanding of the instructions by the patient. Advanced understanding of the instructions by the patient and/or the family was assumed by the nurses to support greater instructional compliance toward improved patient outcomes and reduced incidence of return visit to the ED.

The nurses in this study reported patients' compliance issue with the discharge instructions as a significant problem. This issue was felt to be contributing to patient complications, such as swelling, cast complaints, and cast damage or re-injury, causing unexpected returns to the ED. However, the nursing staff also noted that such complications could be avoided with the implementation of proper casting techniques and clear instructions given to patients. Barriers to effective communications with the patient, such as language barriers or patient anger, were felt to limit the ability to provide clear instructions and reduce patient participation. The involvement of family, when possible, was felt to be one way to support better communication of the instructions and continued compliance among the patients.

Nurses' perceptions of the existing inefficiencies of the discharge planning model included nurse inexperience, lack of training for plaster casting, and lack of staff communication and cooperation to support continuity of care. Therefore, staff educational opportunities to address these issues could support improvements. In addition, difficult patient circumstances, such as patient mental illness and other physical disabilities were felt to be occupational difficulties for the nursing staff, creating difficulties in both casting and conveying the necessary instructions for discharge. Advanced nursing training and appropriate staffing may support the nursing staff in meeting the needs of these special patients as well as the general patient population. In addition to nursing educational opportunities, patient education was also noted as a means of supporting patient compliance and reducing return visits to the ED.

Data obtained from qualitative, open-ended survey questions from the sample of patients concerning their discharge experience indicated difficulties in fulfilling instructions most commonly reported in terms of fulfilling post-operative follow-up visits, and obtaining pharmacy and other supplies such as crutches. Patient responses commonly indicated confusion over follow-up visits and difficulties finding the clinic, pharmacy, or supplies, as well as difficulty booking appointments. Some of these difficulties could be addressed with clear, concise instructions that include directions to follow-up clinic, pharmacy, and supply locations, pre-booking follow-up appointments.

Overall, the findings of the qualitative analysis of this research revealed nursing support for the initial hypothesis that patients whose care is planned and delivered with systematic and clearly presented discharge instructions will achieve better clinical outcomes; including greater self-care ability and reduced return to emergency departments.

6.2.2 Research Question Two

The second research question asked: Are there any correlations between any of the demographic variables, sources and type of discharge instructions, and unplanned return to ED? This research question was addressed with the results of the survey given to the sample of patients with non-major limb injury (Phase One of this research study). It was hypothesised that (a) there would be significant correlations between age, gender, and type of injury, that (b) instructions would influence unplanned return visits to the ED, and (c) the type of injury would influence the patient's self-care ability.

The results of the survey analysis indicated that the most common cause of limb injury was due to falling (46%), followed by pedestrian injury in road traffic accidents (26%). Almost half the participants with limb injury (46%) had unplanned return visits to the ED. These unplanned return ED visits were more common among those with lower education (no schooling or only secondary school compared to those with a diploma, Bachelor or Masters degree) and for those with increased age.

In terms of the relationship with discharge planning, as discharge preparation satisfaction ratings decreased, there was a higher likelihood of unplanned ED return ($p = 0.001$). A similar pattern was observed between clarity of instructions and unplanned ED return ($p = 0.001$). Both discharge preparation ratings and clarity of instructions were positively related to each other ($p = 0.001$), as were psychological distress and self-care ability ($p = 0.001$). In addition, when patients received verbal instructions in the patient's primary language, the discharge preparation and the clarity of the instructions were both rated significantly higher by the patient compared to other types of instructions (verbal, but not in primary language, paper instructions, and demonstration of instructions). Patients who received instructions

from both nurses and doctors (multidisciplinary team) had significantly higher discharge preparation ratings compared to other types of instruction. The main outcomes found are presented in Figure 6.1. It was also noted that patients who received instructions given only by nurses had significantly higher discharge preparation ratings compared to those who received instruction only from doctors.

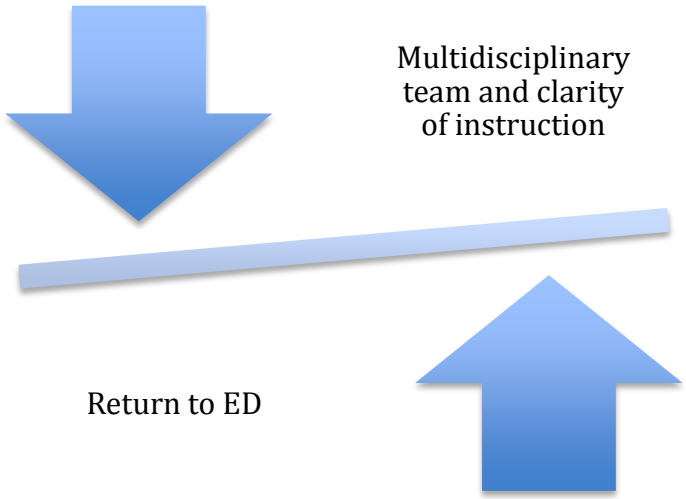


Figure 6.1 Discharge Preparation Effects on Returnee to ED

The patient data analysis revealed that with perceived increased clarity of instructions, the number of returns to the ED declined. As mentioned above, the clarity of instruction rating was significantly higher for participants who received verbal instruction in their own language, compared to the other types of instruction, which included verbal, but not in the primary language of the respondent, paper instructions, and demonstration of instructions. Another factor that was found to affect the rates of returning to the ED included self-care ability. Related to self-care abilities, patient participants who had right or left hand injuries (upper limb) scored significantly higher for self-care ability and overall health than those who had right or left leg injuries (lower limb).

Despite these significant correlations, other factors lacked a significant impact on psychological stress, and on unplanned return visits to the ED. Instructions had no significant direct effect on psychological distress; there was no significant relationship between nationality and unplanned return to the ED; and there was no significant relationship between injured body part, whether upper or lower limb injury, and unplanned return to the ED.

In summary, for the second research question, the results of the quantitative analysis of the survey data of patient participants aligned with the hypothesis. Specifically, the results supported that there would be strong correlations with both age and education level and return visits to the ED. It was originally hypothesized that instructions would influence unplanned return to ED, which was shown through both ratings of discharge planning and clarity of instructions, with inverse correlations (lower discharge preparation ratings were associated with higher likelihood of unplanned ED return, and lower rating of clarity of instruction was associated with higher likelihood of unplanned ED return). A key finding was that patients who received discharge planning from the multidisciplinary team (of both doctors and nurses) had significantly higher discharge preparation ratings. Clarity of instructions was supported by instructions being given in the patients' primary language. In addition, both discharge preparation ratings and clarity of instruction rating were positively correlated with each other, as were psychological distress and self-care ability. It was further hypothesized that type of injury would influence the patient's self-care ability, which was also supported with the results of the data analysis, with upper limb injuries demonstrating higher self-care ability compared to lower limb injuries; however, the type of injury did not correlate with return visit to the ED, nor did nationality.

6.2.3 Research Question Three

The third and final research question for this study asked: When faced with injuries, to what extent do Muslims rely on fatalism and how this impact on participation of care? This question was addressed using the interview findings of the nurse participants as well as open-ended survey question data obtained from the patient sample. It was hypothesised that Muslims are more likely to endorse religious fatalism, beliefs that can create a sense of carelessness and risk-taking, as they have the perception that if an accident is going to happen it will happen, regardless of whether or not they adopt safety measures. The nurse participants' responses to the interview questions revealed the perceived use of fatalism among the patient population, which the nurses described as being used to escape responsibility. The nurse participants perceived a misinterpretation of fatalism combined with a failure to use reason, which is demonstrated by reckless behaviours. Although the nurse participants in this study described the causes of accidents as stemming from both a lack of awareness of and recklessness with regard to traffic rules (and a lack of enforcement), their personal beliefs of protection from harm through good works was also evident, an apparent contrast. Lastly, it was noted that, despite these descriptions, the nurses reportedly did not discuss fatalism with the patients, as they believed the patients generally did not tend to pay attention and listen.

6.3 Discharge Planning

Results of this study primarily serve to support understanding of the discharge planning process and the factors that support effective discharge planning toward improved patient outcomes and reduced unplanned visits to the ED. Discharge planning has been shown to significantly reduce unscheduled re-admissions of patients due to post-discharge complications (Balaban et al., 2008; Jack et al., 2009; Legrain et al., 2011), and provides a

significant advantage to patient social functioning, pain management, and general health related to limb injury recovery specifically (Lin et al., 2009). Although designing a comprehensive model of discharge care for limb injury could be beneficial for health care facilities and patients alike, the results of this study support that discharge planning is a complex process, as different patients have a variety of different needs. Nurse participants described the need to navigate patients through the process, through different care providers, and addressing the variety of needs of the patient at discharge. Coleman (2011) cited the potential complexity of an older patient with a fracture, who required treatment from a diverse range of care professionals in a variety of settings, including an orthopaedic surgeon, hospital nurses, a physiotherapist, home care nurses, and an occupational therapist, at the minimum. These findings align with Watts and Gardner (2005), who concluded that discharge planning is a multidisciplinary process in that it involves the cooperation and coordination of several people that include professionals of different disciplines, the patient, and the family members (Watts & Gardner, 2005).

Discharge planning within the context of multidisciplinary treatment highlights the value of communication, both between healthcare workers and patients and between the multidisciplinary healthcare team. As evident from both the qualitative and quantitative results in this study, communication, both verbal and written, and multidisciplinary team work is key to effective discharge planning and the appropriate sequencing of events. However, lack of team work and poor communication between nurses and other health professionals has been found to be a common issue (Cannaby et al., 2003; Watts & Gardner, 2005). Results of this study (qualitative and quantitative together) support that patients whose care is planned and delivered with systematic and clearly presented discharge instructions from the multidisciplinary team will achieve better clinical outcomes, including

greater self-care ability, reduced return visits to the ED, and higher discharge preparation satisfaction ratings. Without a properly completed discharge plan, patients have been shown to be at risk of experiencing undesirable events at home, and unplanned visits to the emergency department or specialist or readmission to hospital (Bowles et al., 2002; Lalani & Gulzar, 2001; McMurray et al., 2007).

Atallah et al. (2013) found organisational structure, including systematic discharge planning, is the most important means of protecting and promoting the quality of patient care. Similar to the results offered by Mahrous (2013), the results found patients in Saudi Arabia generally satisfied with the discharge process, but confused and dissatisfied with follow-up procedures, such as clinic appointments, pharmacy, and equipment supply access, with information lacking during the discharge process. The failure to meet the patients' information needs during hospital discharge is an important quality indicator that can lead to dissatisfaction, return visits, and poor quality outcomes. In addition, the nurse participants in this study described patients' participation issue (noncompliance) as a significant problem that contributes to complications and return visits to the ED. Findings of this study support the nurses' perceived reduction of complications through clear instruction and effective communication toward supporting patient compliance with instructions. Patient ratings for discharge preparation as well as the actual number of return visits to the ED were positively related to the reported clarity of instruction; thus, the likelihood of unplanned return visit to ED significantly increased as discharge preparation ratings offered by patients decreased.

However, the unique situation in Saudi Arabia, in which the large professional expatriate workforce struggles with varying language fluency and social norm issues, causes difficulties in communication, contributing to less positive patient outcomes (Almutairi, 2012).

Addressing the barriers of effective communication, particularly language barriers, will, therefore, improve the ability of nurses to provide clear instruction and increase patients' participation. This aligns with prior research that has concluded that lack of clarity in instruction led to patients' anxiety about their discharge, being unsure about what they needed to do at home and worrying about a recurrence (Cannaby et al., 2003; Lalani & Gulzar, 2001; McMurray et al., 2007). Patients in the present study also expressed anxiety surrounding the discharge process, being unsure where to attend clinic follow-up, making appointments, and obtaining pharmacy and equipment needs. These findings along with those of prior research support the importance of clearly defined patient instructions that are effectively communicated to the patient and to the patient's family, when appropriate.

In this study, the findings supported that the clarity of instruction was enhanced by instructions given in the patient's primary language. That is, the results showed that instructions given in the patient's own language supported significantly higher patient ratings for discharge preparation and clarity of instruction. The language factor was critical, showing significantly higher results over all other types of instruction communication, including providing written and verbal forms of communication. In addition, patients who received instruction from a multidisciplinary team (both doctors and nurses) also reported significantly higher discharge preparation ratings. However, if limited to one care provider delivering the instructions, ratings for instruction given by nurses only were found to be higher than for doctors only. These findings support the need to provide patient instructions in their primary language and preferably from the multidisciplinary team.

Other factors affecting communication of instructions to the patient were found to be age and education level of the patient. In this study, a strong correlation was found with both age and education level and return visits to the ED, suggesting the need for extra caution and effort to

achieve clarity among patients who are older or have lower educational levels. Particularly for the older, less educated, or disabled populations, the involvement of the family of the patient when possible was suggested to support enhanced understanding of the instructions by the patient, which the nurse participants in this study assumed would support greater instruction compliance and ultimately improved patient outcomes with reduced return visits. This finding supports conclusions offered by Bowles et al. (2003), who identified communication with patients' families to be deficient and as a result, obstructive to the discharge process. Because the discharge of limb injury patients in Saudi Arabia requires coordination of the hospital staff to provide support for the patient and family through pain control, equipment, a daily routine, and later exercise and rehabilitation (Mahrous, 2013), the results suggest a need to focus on communication with the patient's family as a means to enhance patient understanding of the required discharge instructions. Participants in this study also suggested that patient education can also support compliance and reduced return visits to the ED.

Discharge planning for patients with limb injuries becomes even more complex as patients have additional needs such as mobility aids and physiotherapy services. In that regard, in the U.S., Hoyer et al. (2013) ascribed the increased return rate of orthopaedic patients to the inability to carry out the daily tasks on their own. Building on these results, the current study found that patients with upper limb injuries (left or right hand) scored higher in self-care ability and overall health compared to lower limb injuries (left or right leg), suggesting the need for additional discharge planning and possible care alternatives for patients being discharged with lower limb injuries specifically.

Examining the factors that increase the effectiveness of discharge planning from this study results, as well as prior research in the field, highlights the need to identify specific patient

needs after discharge, involvement with family and caregivers, adequate information given during discharge process and clear communication of that information, effective interdisciplinary communication by health professionals, and access to a range of ongoing and appropriate support (Bauer et al., 2009; Shepperd et al., 2013). Clear communication will support awareness and knowledge of the patient's specific needs and ability to comply with instructions. Wong et al. (2011) suggested the use of a comprehensive assessment tool; however, the participants in this current study maintained a focus on clarity of instructions and effective communication in the circumstance of Saudi Arabia as the essential components supporting patient compliance, decreased patient complications post-discharge and return ED visitation, and overall more positive patient outcomes. Wong et al. also contended that the tailored information for each patient would support enhanced communication adjusting for differences in the communication ability of each patient. Given the perceived importance of the clarity of instruction and effective communications to patient and nurse participants in this study, Wong et al.'s suggestion may also be beneficial to limb injury patients in Saudi Arabia.

6.4 Nursing Education and Training

In addition, the findings of this study support the need for nursing continuing education toward providing well-educated and experienced nursing staff, as well as proper staffing, capable of providing clear discharge instructions that will support patient compliance and reduce complications. Morris et al. (2011) also concluded that barriers to effective discharge planning centred on poor planning, communication, inadequate staffing, and poor liaison with external agencies. The factor of communication is critical on different levels, such as between health and social care professionals, between healthcare professionals and patients, and among healthcare professionals (Wong et al., 2012). Similarly, the nurses' perceptions

of inefficiencies of the current discharge planning model in this study included nurse inexperience, lack of training (specifically for plaster casting), and lack of staff communication and cooperation. Difficult patient circumstances, such as physical or mental disabilities, were also noted to contribute to difficulties in casting and conveying instructions for discharge.

Thus, the results of this study and prior research point to the need for advanced nursing training, staff continuing education opportunities, and maintaining appropriate nursing staff and support staff levels. In addition, a need for plaster cast workshops and training in terms of how to apply the cast were felt to support increased performance and decrease return visits due to cast problems. Unfortunately, although lower nurse to patient ratios are preferable, nursing shortages remain problematic. Recruitment efforts will continue to attempt to decrease issues related to staff shortages, but Saudi Arabia still depends largely on expatriate nursing staffing to fill staffing needs, which in turn creates different difficulties in terms of language barriers and other communication and cultural issues (Almutairi, 2013). Among the cultural issues may be patients' views of fatalism.

In terms of fatalism in Saudi culture, the nurse participants in this study perceived fatalism among patients as a means to escape responsibility, related to a perceived misinterpretation of fatalism combined with the patient's failure to use reason and precaution standards (as demonstrated by reckless behaviours), representing a perceived obstacle to effective patient care. However, the personal beliefs of nurses supported ideas of protection from harm through good works, demonstrating a personal belief in fatalism among many of the participants. This result supports a perception of patient misunderstanding of fatalism, rather than a perception against fatalism altogether. Nurses reported not discussing fatalism with patients, which may be the result of the perceived misinterpretation of patients, stating that

the patients "don't listen." However, open discussion of fatalism, the patients' personal beliefs with regard to fatalism, and the impact on personal health outcomes could support improved patient compliance and responsibility with regard to their own health care. Understanding the patient's context and religious understandings and beliefs, without attempting to alter those beliefs, can support enhanced understanding and revised approaches to conveying the importance of complying with discharge instructions and meeting the post-discharge needs of the patient.

6.5 Social Change

As described in the previous section, in some societies, such as Saudi Arabia, religious beliefs and unique cultural practices that impact heavily on patients' lives can be an additional barrier to the accepted success of Western-style health care interventions, including discharge planning (Hamdy, 2009). Therefore, the discharge planning process must consider the patients' unique care needs, socioeconomic circumstances, demographics, health status, and home environment (Frakt, 2013). According to the American Hospital Association (Smith et al., 2006), guidelines for discharge planning include essential elements of early identification of patients who are likely to require post-hospital care, patient and family education, assessment and counselling, discharge plan development, coordination and implementation, and follow up after discharge. The results of this study support additional guidelines, specific to an environment such as Saudi Arabia, in which the majority of nursing staff are expatriate workers. These additions highlight the importance of providing clear instructions, and the use of the patient's primary language to do so. Also, the addition of culturally competent discharge planning will be able to take into consideration religious beliefs, in particular, beliefs related to fatalism and how those beliefs may affect the patient's interpretation of the importance of complying with the instructions. Given the importance of

religious beliefs to many patients in Saudi Arabia, the additional guideline of cultural competence is important to ensuring that beliefs such as fatalism do not become a barrier to follow-up care and positive patient outcomes.

Prone to risk-taking behaviour, individuals who are fatalistic and believe that health is a matter of fate or God's will, beyond individual control (Drew & Schoenberg, 2011), may disregard or fail to comply with health advice and instructions after discharge, thinking that "if I am destined to get better, I will, regardless of whether I seek treatment or not." Therefore, it is imperative that all healthcare interventions, including hospital discharge planning, in Saudi society be considered against the background of the potential adherence or non-adherence by the patients, depending on their ability to understand the instructions given, the ability of the nurse to clearly convey the instructions, and the patients' beliefs and convictions. As noted by the participants in this study as well as prior research (Hamdy, 2009), caution must be taken against misinterpretation of the Islam faith, in the face of suffering, as passive, anti-science fatalism may limit the patient's ability to benefit from proven medical interventions. Using communication and culturally competent approaches, nurses can attempt to understand the interrelation between the two approaches and utilise it to achieve the best outcome. Such an understanding will provide the nurses with the tools and skills for enhancing the patients' psychological wellbeing and general health outcomes (Almutairi, 2012, p. 34). Faith can be used to support patient outcomes, as prior research into the rate of satisfaction among patients, both of Muslim and other faiths, found that belief in fate actually contributed to the improvement of patients' psychological wellbeing (Acevedo, 2008; Greenfield, 2013; Hamdy, 2009).

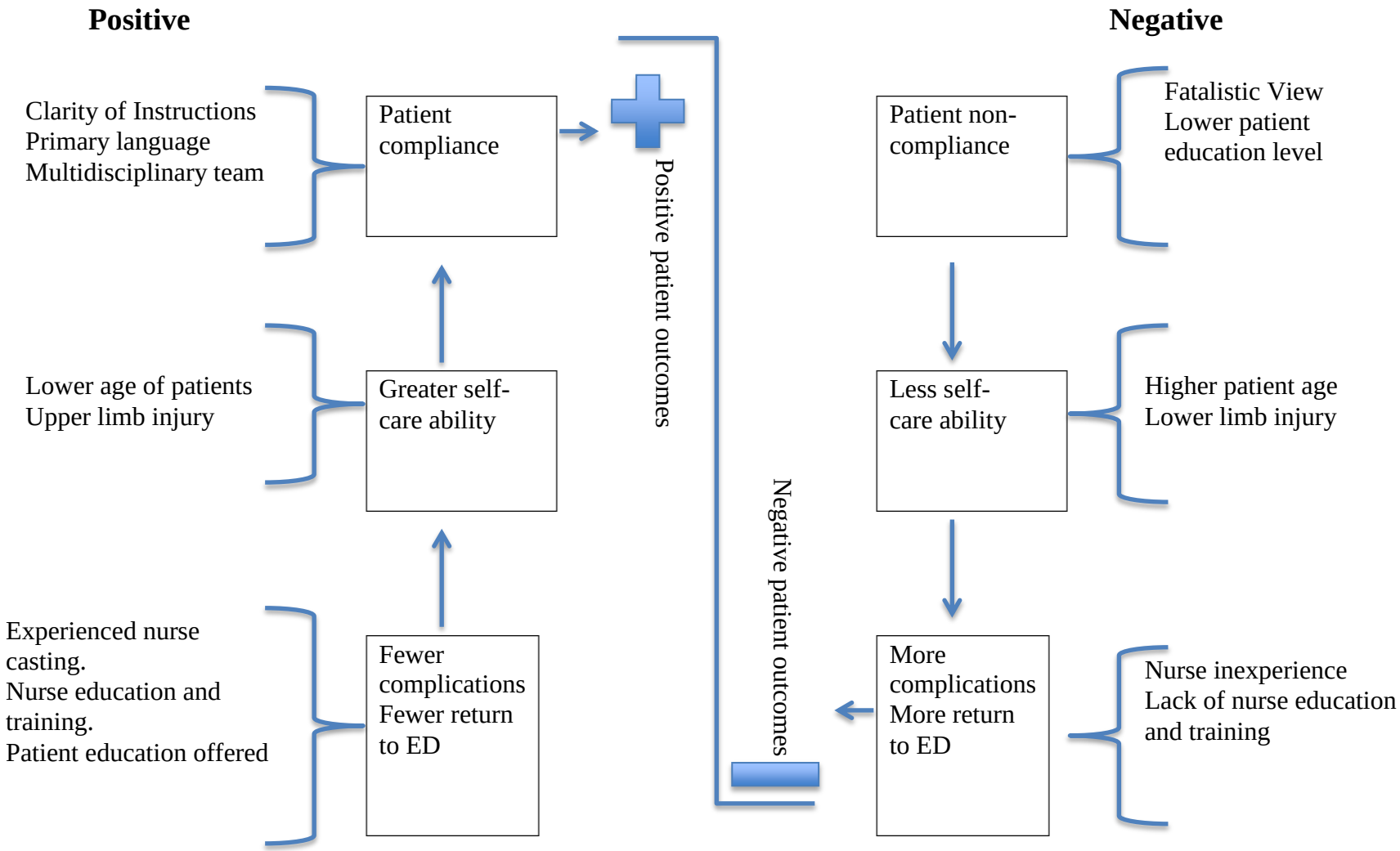
In addition to social change centred on culturally competent nursing practice, outreach into public schools and other community environments could support increased safety and highlight the risks involved in irresponsible traffic violations. These interventions could be aimed at the younger generation of drivers and instilling the sense of importance on following the rules to support one's own safety as well as that of other drivers.

6.6 Discharge planning model

Using the findings of this study, the following model was developed to illustrate the factors perceived to impact patient outcomes from discharge planning. These factors need further research to better understand their impact on patient outcomes.

Figure.6.1 Alshammari Model of Discharge

Figure 6.2 Alshammari Model of Discharge for Patients with Non-Major Limb Injuries



6.7 Conclusion

The qualitative and quantitative results from this study were used to generate a model of discharge planning for limb injuries in Saudi Arabia. From the model, factors supporting positive patient outcomes include (a) factors that support fewer complications and as such, fewer return visits to the ED, such as experienced nurse casting, nurse education and training, and patient education; (b) factors that support the patient's ability to provide self-care, such as lower age of patient and upper limb (rather than lower limb) injury; and (c) factors that support patient compliance, such as providing clarity of instructions, use of the patients' primary language in providing discharge instructions, and the use of the multidisciplinary team in delivering patient instructions. Conversely, factors to be aware of (in terms of the need for extra support), which supported negative patient outcomes included (a) factors contributing to patient noncompliance, such as cultural or religious views of fatalism and lower education levels of the patient; (b) factors contributing to less self-care ability among patients, such as increased patient age and lower limb injuries; and (c) factors contributing to more complications and more frequent return visits to the ED, such as nurse inexperience or lack of education and training.

This model can be used to focus attention and efforts on these critical factors to support and enhance the factors contributing to positive patient outcomes, while simultaneously addressing factors that contribute to negative outcomes for patients. This discussion has offered suggestions based on the implications of the findings of this study toward supporting positive patient outcomes and reducing negative outcomes with regard to limb injuries in Saudi Arabia specifically. Chapter 7 will present the conclusions of the study through a discussion of the study's contribution to knowledge and practice, as well as noting the

strengths and limitations of the study and the resultant need for further exploration of this topic in the future.

CHAPTER SEVEN: CONCLUSION

7.1 Introduction

Due to the complex nature of the discharge planning process, a multidisciplinary approach is needed to support positive patient outcomes in limb injury in Saudi Arabia; however, the level of cooperation and coordination of services extends to the cooperation and compliance of patients in this process. Patient participation is a significant issue that contributes to negative patient outcomes, complications, and return visits to the ED. This study was designed to seek a better understanding of the process and clinical outcomes of discharge planning for non-major limb injuries, and the impact of cultural and religious beliefs, such as fatalism, on patient care and outcomes.

The study results and discussion culminated in the development ofa model of discharge planning for limb injuries in Saudi Arabia, addressing the specific and unique factors affecting patient outcomes in this population, in which the high percentage of expatriate nursing staff presents certain critical obstacles to effective communication and cultural competence. The model offers an understanding of the factors involved in discharge planning for limb injuries in Saudi Arabia and the associated effects on patient outcomes. This chapter provides a discussion of the contribution of the results of this study, while also noting the limitations of the study, and supporting new directions for continued exploration on this topic.

7.2 Contribution to Knowledge

The results of the study support enhanced knowledge and understanding of the discharge process, particularly in relation to orthopaedic, limb injuries in Saudi Arabia. The study provides insight into the complexity and specific inefficiencies of the current discharge

planning models, and how those inefficiencies can be improved to support more effective discharge planning with fewer patient complications and fewer return visits to the ED. Multiple factors contribute to the complexity of the discharge process, including the current tendency to shorten hospital stays of patients due to hospital financial constraints and shortages in meeting the public need for acute care (Ben-Morderchai et al., 2010). With shorter lengths of stay for patients, management of patients' ongoing care is shifted to the community (Carroll & Dowling, 2007; Katikireddi & Cloud, 2009; Lim et al., 2009; New South Wales Health, 2009) for which discharge planning and continuing care instructions are paramount.

For patients with limb injuries, when discharged, patients may be unable to complete daily living activities independently, requiring support for post-discharge care. Discharge planning becomes critical for these patients and their family and friends to supply the requisite information on sources of care, appropriate wound management and physiotherapy, given the variability in health knowledge (Ben-Morderchai et al., 2010; McMurray, Johnson, Wallis, Patterson, & Griffiths, 2007). Research indicates that discharge without adverse events requires systematic, evidence-based discharge practice (Altallal, 2013; Bradley et al., 2014).

This study informs practice by outlining specific inefficiencies of the discharge process, including patient compliance issues and resulting complications, which were felt to be reduced through clear discharge instructions and effective communication. Results of this study also provide information on factors perceived by nurses and patients that affect communication of instruction and the discharge process, providing strategies for improving the clarity of instructions and effective communication. The findings also inform nursing continuing education and staffing policy toward providing well-educated and experienced

nursing staff, capable of providing clear discharge instructions that will support patient compliance and reduce complications.

Religious beliefs in Saudi Arabia often support fatalisms that are considered essential to the life process (Hamdy, 2009). Hamdy defined fatalism as the doctrine that everything in life is predetermined by fate and in turn unalterable. However, fatalism in Islam refers to the will of God, who determines all things and who created the ways of doing things in life, such as treatments and medication. For example, if there is treatment for cancer all the attempts being undertaken to find it will not be successful without God's will. Prior research suggests that people who are fatalistic are more prone to be indulging in risk-taking behaviour (Hazen & Ehiri, 2006; Kayani, 2011). In the case of healthcare matters, fatalism can manifest as disregard of health professional advice and participation with instructions or recommended medication regimes, as patients demonstrate a "why bother" attitude.

The results of this study related to nurse perceptions of fatalism in the acute care of limb injuries inform the literature by providing the nurses' interpretation of the use of fatalism in this context. Despite common personal beliefs of protection from harm through good works (part of a fatalistic belief system), the nurse participants in this study perceived a lack of reason combined with a misinterpretation of fatalism among the patient population, which the patient used to escape responsibility. The findings of this study suggest that, because of the potential for noncompliance resulting from a fatalistic attitude, it is imperative that healthcare interventions such as hospital discharge planning, in Saudi Arabia consider patient beliefs to support increased patient compliance and positive outcomes, aligning with the suggestions of Hamdy (2009).

This study, therefore, contributes to knowledge and understanding of the discharge process for limb injuries specifically in Saudi Arabia, offering a framework for understanding the factors that may affect the effectiveness of discharge planning, including misinterpretation of beliefs of fatalism, toward reduced patient complications and unplanned visits to the ED. Given the increasing incidence of RTAs among the young population as a growing health hazard in Saudi Arabia, identification of the impact of fatalism in particular, as well as other aspects contributing to limb injury and affecting patient compliance to support effective discharge planning are critical to providing a framework that will support quality nursing care to this population. This study contributes an understanding of the perceived role of fatalism in limb injury care and discharge, as nurse participants view their patient populations, particularly of the young, risk taking population, as misinterpreting fatalistic beliefs, and as such, the beliefs serve to limit patient understanding of the need to follow discharge instruction and comply with care guidelines offered by healthcare staff. The results also inform the literature in terms of other factors perceived to affect discharge planning effectiveness and patient compliance with discharge instructions. Implications of the findings for both discharge planning and nursing education and training are discussed further in the following sections.

7.3 Research Strengths

This research supported a number of contributions to the literature on discharge planning and nursing practice related to discharge planning. The findings of this study underscore the importance of a systematic and clearly presented discharge planning process toward the achievement of better clinical outcomes in terms of greater self-care ability, fewer complications, and reduced return visits to the ED. The results highlight the importance of clarity of communication, particularly with regard to the discharge instructions given to

patients to support effective discharge planning. The use of verbal instructions in the patient's primary language, cooperation of the multidisciplinary team in discharge planning, and understanding the unique injury type, social, religious, and educational experiences and views of patients can support enhanced clarity of instructions given, in turn supporting self-care ability, compliance with instructions, higher patient satisfaction, and fewer return visits to the ED. The study provides a springboard from which to launch an exploration of the specific factors that impact the effectiveness of culturally sensitive discharge planning.

Findings shed light on the nurses' views of the use of fatalism as a misinterpretation or escape from responsibility, particularly among the high risk younger population, who were believed to also demonstrate a lack of reason. The findings revealed that nurses avoided discussion of fatalism with their patients, while these types of discussions may be useful in educating this population of limb injuries, given a culturally competent approach.

The research was strengthened by the inclusion of both qualitative and quantitative data obtained from two different participant groups (nurses and patients). Both the nurse and patient samples were limited to limb injury providers and patients. The sample did not represent all possible injury types, but did include both upper and lower limb injuries, highlighting differences in ability for self-care at discharge. Another methodological strength of the study was the use of semi-structured interviews, as the depth of understanding achieved through the interview process permitted an in-depth understanding of the participants' beliefs related to discharge planning, and the factors that impact successful discharge planning, including differences in religious beliefs, languages, and age and education levels.

7.4 Research Limitations

This research was limited by the perceptions of nurse participants in a single facility and the self-report data obtained from patients. Thus, methodologically, the study was limited to self-report data. As such, the participants may have reported exaggerated or limited religious practices or patient practices. The researcher conducted the interviews. A source of potential bias, as the researcher could have unintentionally led the participants toward a particular response. The interviews were audio recorded to support accuracy in the interview data collection.

7.5 Future Research Directions

Although this research has made significant contributions to understanding the discharge process, the factors that may affect this process and the role of fatalistic beliefs, common in Saudi Arabian society, may impact public safety as well as the ability to successfully provide discharge care. Additional qualitative inquiry is necessary into the role of fatalism and how these beliefs can be used to support discharge planning that will increase patient compliance, reduce patient complications and unplanned visits to the ED, and enhance patient outcomes, rather than hinder effective discharge planning. Quantitative research is needed into the specific impact of education and age on ability to care and patients' participation issues.

One factor that was felt to possibly support patient compliance was the involvement of the patient's family. This was perceived to provide better communication of the discharge instructions to the patient and promote better patient care once outside of the hospital setting, as the patient is often reliant on his or her family for care. This would also be applicable to older patient populations as well as disabled patients who may need additional assistance.

Given the nurses' perceptions of model inefficiencies, research into the impact of nurse inexperience, and educational level may reveal critical information toward supporting opportunities for continuing education. Additional research is needed to examine the effectiveness of cultural competence training, as well as plaster casting training, and professional development in effective communication strategies, such as therapeutic communication practices, on the effectiveness of discharge planning. Due to the importance of verbally offering the discharge instructions to patients in their primary language to support clear understanding of the instructions, research examining the value of using interpreters compared to relying on the nurses' capabilities in this regard would support the development of best practices. Development of best practices in providing effective discharge planning through clarity of the instructions will support reduced patient confusion over postoperative clinic visits, locations of follow-up visits, and obtaining supplies and pharmacy supplies.

7.6 Conclusions

In this study, for the first time, the researcher focused on the approaches to discharge care for a sub group of non-major limb injuries. Fitting the findings together formed a model to describe the factors that were felt by participants to positively impact patient discharge outcomes, by increasing the clarity of – and patient compliance with – discharge care instructions, increasing patient self-care ability, and reducing complications and return visits to the ED, as well as factors that decreased patient compliance with instructions, decreased self-care ability, and increased complications and return visits to the ED. Social and cultural roles, including that of fatalistic ideologies, contribute to this model, particularly in Saudi Arabia, where religious views represent important aspects of the lives of patients, and which may differ from the view of the expatriate nursing staff. Additional research is needed to further clarify the interrelationships between cultural and religious views and patient

compliance issues. However, this study contributes significantly to the understanding of the experiences of the participant nurses and patient samples and the importance of effective communication, culturally competent care, and effective discharge planning toward positive patient outcomes. It is generally accepted that timely and well prepared discharge models are the keys to the efficiency in a system with overburdened EDs

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APPENDICES

Appendix A: Monash University Human Research Ethics Committee Approval

MONASH University

Monash University Human Research Ethics Committee (MUHREC)
Research Office

Human Ethics Certificate of Approval

Date:	**12 December 2012**
Project Number:	**CF12/2629 – 2012001427**
Project Title:	**Limb trauma in Saudi Arabia: Investigation into the systems and services supporting recovery**
Chief Investigator:	**Dr Virginia Plummer**
Approved:	**From: 12 December 2012 To: 12 December 2017**

Terms of approval

1. The Chief investigator is responsible for ensuring that permission letters are obtained, if relevant, and a copy forwarded to MUHREC before any data collection can occur at the specified organisation. **Failure to provide permission letters to MUHREC before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research**.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project (including changes in personnel):** Requires the submission of a Request for Amendment form to MUHREC and must not begin without written approval from MUHREC. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

Professor Ben Canny
Chair, MUHREC

cc: Dr Meredith McIntyre, Dr Mohammed Alshammari

Appendix B: Ethical Approval from Participating Hospitals

Kingdom of Saudi Arabia
National Guard-Health Affairs
King Abdulaziz Medical City
Institutional Review Board

المملكة العربية السعودية
الحرس الوطني – الشؤون الصحية
مدينة الملك عبدالعزيز الطبية

14572 1515 14571 irb@ngha.med.sa

M E M O R A N D U M

Ref. #: IRBC/319/12

Date: **(G) 10 DECEMBER 2012**
(H) 26 Muharram 1434

To: **DR. VIRGINA PLUMMER**
Principal Investigator – RC12/044
BN/BEHP Course Coordinator
HDR Student Supervisor
Monash University, Australia

Subject: **PROTOCOL RC12/044 "Limb Trauma in Saudi Arabia : An investigation into the Systems and Services Supporting Recovery"**

This is in reference to your subject proposal, which has been reviewed by the IRB Office on the 9th of December 2012 through the expedited review process. Upon recommendation of the Research Committee, and following the review of the IRB on the ethical aspects of the proposal, you are granted permission to conduct your study.

Your research proposal is **approved for one year** commencing from the above date with the following conditions:

TERMS OF APPROVAL:

1. **Annual Reports**: Continued approval of this project is dependent on the submission of an Annual Report. Please provide KAIMRC with an Annual Report **determined by the date of your letter of approval**.
2. **Amendments to the approved project**: Changes to any aspect of the project require the submission of a Request for Amendment to KAIMRC and must not begin without an approval from KAIMRC. Substantial variations may require a new application.
3. **Future correspondence**: Please quote the project number and project title above in any further correspondence.
4. **Monitoring**: Projects may be subject to an audit or any other form of monitoring by KAIMRC at any time.
5. **Retention and storage of data**: The PI is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

[redacted]

Prof. Amin Kashmeery
Chairman, Institutional Review Board **(IRB)**
National Guard Health Affairs

Dr. Mohammed Al Jumah
Executive Director, KAIMRC
National Guard Health Affairs

Dr. Bandar Al Knawy
Chief Executive Officer
National Guard Health Affairs

AK/AS/jue

KFSH-D Institutional Review Board (IRB)
National Registration Number (H-05-D-002)
Federal Wide Assurance (00018714)
IRB Number (IRB00008686)

وزارة الصحة
Ministry of Health

Issued by IRB Coordinator: Reem Shinawi
Telephone: +966-03- 844-2890/2978
Email: Reem .Shinawi @kfsh.med.sa

IRB Approval Letter
13TH FEB 2013
IRB Reference Number: **MOH022-EXP99**

Mr. Alshammari,
mshammari@gmail.com

Re: Limb Trauma in Saudi Arabia: An Investigation into the Systems and Services Supporting Recovery

Study Number: MOH022

Dear Mr. Alshammari,

On 5/12/2012, the Institutional Review Board (IRB) at KFSH-D received study documents for initial review. On 11/02/2013, the IRB reviewer reviewed the documents and requested minor modifications. last updates were sent to IRB on 13/02/2013, and approved by the IRB Chairman on the 13 /2/2013.

The study is approved for one year from 13th February 2013 to 13th February 2014

- If there are any further amendments, please complete the "Amendments Submission From" and return it to the IRB. Amendments may not be initiated until IRB approval has been obtained
- If you need to extend the IRB Approval, please submit an application for continuation of approval submitted by **13th November 2013**.
- Upon study completion, we would be grateful if you could submit a final report.

The documents reviewed included:

- Protocol v1
- ICF v2
- Information sheet v3
- Survey v3

If you have any further enquiries regarding the IRB's decision, you may contact the IRB Coordinator at IRB@kfsh.med.sa

We thank you for submitting your study for review by the IRB at KFSH-D and wish you all the best with this study.

[redacted]
KFSH-D

[redacted]
Director, Research Administration
KFSH-D

KFSH-D Institutional Review Board (IRB)
National Registration Number (H-05-D-002)
Federal Wide Assurance (00018714)
IRB Number (IRB00008686)

وزارة الصحة
Ministry of Health

Issued by IRB Coordinator: Reem Shinawi
Telephone: +966-03- 844-2890/2978
Email: Reem .Shinawi @kfsh.med.sa

Conditions of Approval

- If the study is to be conducted outside king fahad specialist hospital- Dammam, permission of the administration of that institution and or its IRB (if available) must be sought and secured before the study can be conducted.
- Failure to obtain this permission may result in a delay in the start of your research.
- No subjects may be included in a study procedure prior to the first patient in (FPI) as specified in the protocol. This means that nothing can be done with subjects until after the date of the FPI.
- All unanticipated or serious adverse events must be reported to the IRB within 5 days.
- All protocol modifications must be IRB approved prior to implementation unless they are intended to reduce risk. This includes any change of investigator, or site address.
- Inform the IRB prior to making prospective changes to the study procedures. If you know something will change, the IRB should also know.
- All protocol deviations must be reported to the IRB within 5 working days.
- All recruitment materials and methods must be approved by the IRB prior to being used, as these would be considered modifications.
- If a study activity will continue after the expiration date, the sponsor and investigator(s) are responsible for initiating the Continuing Review proceedings.

[redacted]
KHALI
IRB Ch
KFSH-D

[redacted]
MOHAMED SAGER, MD, PhD
Director, Research Administration
KFSH-D

IRB Reference Number: **MOH022-EXP99**

بسم الله الرحمن الرحيم

المملكة العربية السعودية
وزارة الصحة
الإدارة العامة للبحوث والدراسات

وزارة الصحة
القيد: ٢٧٥/٢١٩٥١٩
١٤٣٤/٠٦/٢١ هـ ١٠:١٣ صباحا
المرفقات: ٢ لفة
275--1-219519-72-0

الرقم
التاريخ
المشفوعات

الموضوع: بحث الطالب/محمد الشمري.

سعادة / المدير العام التنفيذي لمدينة الملك فهد الطبية بالرياض المحترم

السلام عليكم ورحمة الله وبركاته،،،

إشارة إلى موضوع الطالب / محمد حمدان الشمري ، لدراسة الدكتوراه في تخصص التمريض بجامعة موناش بأستراليا ، رقم السجل المدني (١٠٤٦٠٩٤١٥٥) ، والرقم الأكاديمي (٢١٦٧٥٣٤١) وعنوان الرسالة :

"إصابة الأطراف في السعودية: التحقيق في الأنظمة والخدمات لدعم التعافي"

"Limb Trauma in Saudi Arabia: An investigation into the system and services supporting recovery".

نحيطكم علماً بأن المذكور قد إستوفى كافة المستندات المطلوبة وتمت مراجعتها من قبل اللجان المعنية (مرفق صورة)، وتمت الموافقة على تسهيل مهمة إجراء هذا البحث، وحيث أن المذكور عاليه سينفذ جزء من دراسته في مدينة الملك فهد الطبية بالرياض.

نأمل التفضل بالإطلاع والإيعاز لمن يلزم بتسهيل مهمته لجمع البيانات اللازمة بما يضمن أن لا يكون هناك أي تأثير على خدمة المراجعين والمرضى خلال قيامه بمهام بحثه، مع العلم بأن وزارة الصحة لا تتحمل أية أعباء مالية أو إدارية في البحث.

ولكم أطيب تحياتـــي ،،،

[redacted]

الإ

هاتف: ٩٦٦١٤٧٣٥٠٣٨ + فاكس: ٩٦٦١٤٧٣٥٠٣٩+ ص.ب الرياض: ٢٧٧٥ الرمز البريدي: ١١١٧٦
e-mail: research@moh.gov.sa

المملكة العربية السعودية
وزارة الصحـــة

Kingdom of Saudi Arabia
Ministry of Health

مدينة الملك سعود الطبية
KING SAUD MEDICAL CITY

الموضوع : موافقة إجراء بحث

سعادة/ مدير عام الإدارة العامة للبحوث والدراسات بوزارة الصحة سلمه الله

السلام عليكم ورحمة الله وبركاته ...

إشارة إلى خطاب سعادتكم رقم٢٧٥/٢١٩٥٣١والتاريخ ١٤٣٤/٦/٢١هـ بخصوص طلب الطالب/محمد حمدان الشمري إجراء بحث بعنوان (**إصابة الأطراف في السعودية :التحقيق في الأنظمة والخدمات لدعم التعافي**) لدراسة الدكتوراه في تخصص التمريض بجامعة موناش باستراليا.

وعليه نفيد سعادتكم بأنه قد تمت مراجعة البحث باجتماع اللجنة المنعقد بتاريخ ١٤٣٤/٧/١٦هـ وتمت الموافقة عليه، على أن يقوم الباحث بالتالي :

أولاً : الاتصال بمنسقة اللجنة عند البدأ بالبحث .

ثانياً : عند الانتهاء، موافاة اللجنة بتقرير عن النتائج للحصول على خطاب يفيد الانتهاء من البحث في المدينة.

ثانياً : إفادة اللجنة بصورة من البحث بعد طباعته ونشره في إحدى المجلات العلمية.

و تفضلوا بقبول أطيب تحيه ،،،

مدير إدارة الشئون الأكاديمية والأبحاث

[redacted]

د . رفاه بنت صالح اليوسف

ع. د.دينا/د.رفاه

الرقم ٤١١٧٠ التاريخ ١٤٣٤/٧/١٦ المرفقات .....

EXPIRATION OF IRB APPROVAL

March 16, 2014

Dr. Mohamed Hamad Alshammari
mshammari@gmail.com

Dear Dr. Mohamed Hamad Alshammari

On *12 February 2014* IRB approval of the following protocol expired:

Type of Review:	Continuing review
Title:	Limb Trauma in Saudi Arabia: An Investigation Into the Systems and Services Supporting Recovery
Investigator:	Mohamed Hamad Alshammari
IRB ID:	MOH022-EXP99
Funding:	MOH
IND:	None
Duration of Research:	Not applicable
Documents Reviewed:	Protocol version 1 ICF v.2 Patient information sheet v.3 Survey v.3

All research activities must stop. This includes recruitment, advertisement, screening, enrollment, consent, interventions, interactions, and collection or analysis of private identifiable information. Advertisements currently running in the media must be pulled.

Continuation of research activities without prior IRB review and approval is a violation of National Committee of Bio and Medical Ethics.

If you believe that current subjects are at risk of harm by stopping research procedures:

- Prepare a written list of subjects who will be harmed.
- Identify the research procedures that need to continue.
- Describe the reasons that these procedures need to continue.
- Immediately provide the IRB Office with this information.

If you have not already done so, please submit a completed "FORM: Continuing Review Progress Report" and required attachments to request continuing approval or study closure.

A copy of this letter will be forwarded to the sponsor and your supervisor.

Sincerely,

[redacted]

Kha[redacted]n), MBA
IRB Chairman
KFSH-D

المملكة العربية السعودية
Kingdom Of Saudi Arabia
وزارة الصحة
Ministry of Health
(٢٧٥)
الإدارة العامة للبحوث والدراسات

وزارة الصحة
Ministry of Health

الـــرقـــم
الـتـاريـخ
المشفوعات

الموضوع: بحث الطالب/محمد الشمري.

المحترم

سعادة / مدير عام الشؤون الصحية بمنطقة الرياض

السلام عليكم ورحمة الله وبركاته،،،

إشارة إلى موضوع الطالب / محمد حمدان الشمري ، لدراسة الدكتوراه في تخصص التمريض بجامعة موناش بأستراليا ، رقم السجل المدني (١٠٤٦٠٩٤١٥٥) ، والرقم الأكاديمي (٢١٦٧٥٣٤١) وعنوان الرسالة :

"إصابة الأطراف في السعودية: التحقيق في الأنظمة والخدمات لدعم التعافي"

"Limb Trauma in Saudi Arabia: An investigation into the system and services supporting recovery".

نحيطكم علماً بأن المذكور قد إستوفى كافة المستندات المطلوبة وتمت مراجعتها من قبل اللجان المعنية (مرفق صورة)، وتمت الموافقة على تسهيل مهمة إجراء هذا البحث، وحيث أن المذكور عاليه سينفذ جزء من دراسته في مستشفى الأمير سلمان بن عبدالعزيز بالرياض.

نأمل التفضل بالإطلاع والإيعاز لمن يلزم بتسهيل مهمته لجمع البيانات اللازمة بما يضمن أن لا يكون هناك أي تأثير على خدمة المراجعين والمرضى خلال قيامه بمهام بحثه، مع العلم بأن وزارة الصحة لا تتحمل أية أعباء مالية أو إدارية في البحث، ومرفق طيه نسخة من المقترح البحثي.

ولكم أطيب تحيـاتـــي ،،،

مدير عام

الإ[redacted]لدراسات

هاتف: ٩٦٦١١٤٧٣٥٠٣٨ + فاكس: ٩٦٦١١٤٧٣٥٠٣٩+ ص.ب الرياض: ٢٧٧٥ الرمز البريدي: ١١١٧٦
e-mail: research@moh.gov.sa

المملكة العربية السعودية
وزارة الصحة
الإدارة العامة للبحوث والدراسات

الرقم:.....
التاريخ: / / هـ
المشفوعات: .....

الموضوع: بحث الطالب/محمد الشمري.

المحترم

سعادة / الملحق الثقافي السعودي - بأستراليا

السلام عليكم ورحمة الله وبركاته، ، ، ،

إشارة إلى موضوع الطالب/ محمد حمدان الشمري، المبتعث لدراسة الدكتوراة في تخصص التمريض بكلية الطب والتمريض والعلوم الصحية، جامعة موناش بأستراليا، رقم السجل المدني (١٠٤٦٠٩٤١٥٥)، والرقم الأكاديمي: (٢١٦٧٥٣٤١) وعنوان الرسالة :

" إصابة الأطراف في السعودية :التحقيق في الأنظمة والخدمات لدعم التعافي "

نحيطكم علماً بأن الطالب المذكور قد أكمل مهمته في جمع البيانات الخاصة بموضوع دراسته في مستشفيات وزارة الصحة السعودية وذلك خلال الفترة من ٢٠١٤/٨/١م وحتى ٢٠١٤/١٠/٢٨م.

وقد أعطى هذا الخطاب بناءً على طلبه لتقديمه للملحقية الثقافية السعودية في أستراليا.

وتفضلوا بقبول خالص تحي

[redacted]

المملكة العربية السعودية
وزارة الصحة
الإدارة العامة للبحوث والدراسات
الاتصالات الإدارية
الوكالة المساعدة للتخطيط والتطوير

الرمز البريدي: ١١١٧٦ ص.ب الرياض: ٢٧٧٥ فاكس: ٠١١٤٧٣٥٠٣٩ هاتف: ٠١١٤٧٣٥٠٣٨
e-mail: research@moh.gov.sa

Appendix C: Explanatory Statements:

For Phase One: patients with non-major limb injury (Arabic)

بِسۡمِ ٱللَّهِ ٱلرَّحۡمَٰنِ ٱلرَّحِيمِ

شرح تعبئة الاستبيان

إصابة الأطراف في السعودية التحقيق في الأنظمة والخدمات لدعم التعافي
إصابة الأطراف دائما تكون مفاجئة وغير متوقعة في حياة الانسان، وتشكل أحيانا صعوبات وأعاقة للبعض. وبشكل عام، فإن الإصابة ربما تؤثر على الحركة وتعيق الأنشطة والأداء الوظيفى والصحة.
أدعوك لتكون جزءًا من هذه الدراسة، وأرجو قراءة شرح الاستبيان كاملا قبل اتخاذ القرار بالمشاركة.
أنا محمد الشمري، أقوم بعمل بحث مع الدكتورة فيرجينيا بلمر والدكتورة ميريدث ماكنتاير في كلية الطب والتمريض في جامعة موناش في أستراليا لدرجة الدكتوراه، وسوف أقوم بنشر رسالة تتألف من ما يقارب ٣٠٠ صفحة.

الأهداف والفوائد المرجوة من البحث
هدف البحث هو النظر في الخدمات والاجراءات المتبعة للمرضى المصابين بكسور في الأطراف وشرح تجربة التعافي في المنزل بدلا من المستشفى. الفائدة المرجوة هي النظر في إيجاد طرق لتحسين اجراءات الخروج والخدمات المستقبلية للمرضى الآخرين المصابين بالكسور وكيفية العناية بهم.

ماذا يتطلب البحث
سوف يوزع استبيان على المراجعين ذوى الاطراف المصابه لعيادة العظام في العيادات الخارجية، وارجوا عدم تعبئة الاستبيان اذا كنت مصاب بالظهر او الرأس او الورك.وليس مطلوبًا من المرضى ذكر اسمائهم في الاستبيان لضمان خصوصيتهم. ويحق لك الانسحاب من الدراسة من دون أية عواقب. لكن يحق لك الانسحاب قبل تسليم الاستبيان. حيث أن الاستبيان تطوعي وليس من الضرورى الموافقة على المشاركه.

كم من الوقت يستغرق
بين ١٥ الى ٢٠ دقيقة

المضايقة أو الانزعاج
هناك بعض الأسئلة في الاستبيان تتناول تجربتك في المستشفى والخروج إلى المنزل. ربما يكون استذكار ما حدث لك تجربة مؤلمة. وإذا شعرت بضيق يمكنك مراجعة الطوارئ في اى وقت. أتمنا أن أحصل على تعبيرك عن تجربتك الصادقة؛

مكافئة
لا توجد أية مكافئة مقابلة الاشتراك في البحث.

الخصوصية
نضمن لك أن الاستبيان سوف يتم بسرية تامة، ولا يحق لأي أحد، سوى الباحثين، الحصول على أية معلومة عن المشاركين أو التعرف عليهم.

حفظ البيانات
سوف تحفظ جميع المعلومات بموجب أنظمة جامعة موناش في خزينة مقفلة لمدة خمس سنوات وبعد ذلك يتم إتلافها. أما التقرير النهائي فسوف ينشر ولكن دون ذكر أي من أسماء المشاركين.

النتيجة
إذا رغبت في الحصول على النتيجة النهائية للبحث يمكنك الاتصال بصاحب البحث محمد الشمّري على الرقم ٠٥٣٣٠٠٠٣٤٧ أو الرقم ٠٠٦١٤٩٩٩٠٥٥٥[redacted]، أو مراسلته عبر الإيميل التالي:

إذا كانت لديك أية شكوى حول موضع البحث أو حول كل ما له علاقة بالبحث، فيمكنك الاتصال بـ:	إذا رغبت في التواصل مع الباحث الرئيسي يمكنك الاتصال بـ:
فايز العنزي تلفون ٠٥٦٠٦٠٥٠٥٠ [redacted]	الدكتورة فيرجينيا بلمر تلفون ٠٠٦١٣٩٩٠٤٤٠٦٤ [redacted]

For Phase One: patients with non-major limb injury (English)

Questionnaire Explanatory Statement

Title: **Limb Trauma in Saudi Arabia: An investigation into the systems and services supporting recovery**

Injury to limbs usually involves a sudden, unexpected interruption in the course of an individual's life, and there is often difficulty component, which can be quite disabling for many. This injury may impact overall functioning and impose limitations on activities, work environments, and well being.

You are invited to take part in this study. Please read this explanatory statement in full before making a decision.

My name is Mohammed Alshammari and I am conducting a research study with Dr. Virginia Plummer and Dr Meredith McIntyre, Senior Lecturers at Faculty of Medicine, Nursing and Health Sciences towards PhD at Monash University. This mean that I will be writing a thesis which is the equivalent of a 300 page book.

Purpose and possible benefits
The purpose of this study is evaluate the system and services for patients who have broken limbs, and describe the experience of patients recovery from hospital discharge to home, so that we will be better able to review the system and enhance services for patients in the future.

What does the research involve?
A survey questionnaire will be distributed to patients who had limb trauma and here for a visit at orthopaedic outpatient clinic for appointments or review. This survey is not suitable for patients with spinal, pelvic, or head injury. If you have so, please do not fill the survey. Participants are not asked to write their names to ensure anonymity. There are no implications of withdrawal, but participants will not be able to withdrew from the research once it they hand in the questionnaire. Being in this study is voluntary and you are under no obligation to consent to participation.

How much times will the research take?
This survey may take between 17 to 25 minutes to complete.

Inconvenience/ discomfort
The survey will ask to describe the inpatient experience, discharge process, and recovering in the home environment. Your recollections may be painful at times, If you feel distress you can visit Emergency Department at anytime. I hope that you will be able to give me your honest feedback. Feel free not to answer any question or all of the questions if you do not feel comfortable to answer it.

Payment
No payment will be offered to the participants.

Confidentiality
All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information provided by participants.

Storage of Data

Storage of the data collected will adhere to the Monash University regulations and kept on University premise in a locked cupboard/ filling cabinet for 5 years. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

Result

If you would like to be informed of the aggregate research finding, please contact Mohammed Alshammari [redacted]

If you would like to contact the researchers about any aspect of this study, please contact the chief investigator:	If you have a complaint concerning the manner in which this research " limbs Trauma in Saudi Arabia" is being conducted, please contact:
Dr Virginia Plummer [redacted]	Faiz Alanizi [redacted]

For Phase Two: orthopaedic nurses (English)

Explanatory Statement

Title: **Limb injury in Saudi Arabia: An investigation into the systems and services supporting recovery (discharge planning)**

You are invited to take part in this study. Please read this explanatory statement in full before making a decision.

My name is Mohammed Alshammari and I am conducting a research study with Dr. Virginia Plummer and Dr Meredith McIntyre Senior Lecturers at Faculty of Medicine, Nursing and Health Sciences towards PhD at Monash University. This means that I will be writing a thesis which is the equivalent of a 300 page book.

Purpose and possible benefits

The purpose of this study is evaluate the system and services for patients who have broken limbs, and describe the experience of patients' recovery from hospital discharge to home, so that we will be better able to review the system and enhance services for patients in the future.

What does the research involve?

Participation involves a semi-structured interview. Mainly the interview will be for nurses who had limb/s injury and were discharge from hospital and then recovered at home. The interview will be tape – recorded and then transcribed. You will have the opportunity to review the draft of the transcript.

How much time will the research take?

The interview will last between 30 to 45 minutes of your time and can be conducted at a place and time that is suitable for you.

Inconvenience/ discomfort

The interviewer will ask you to describe the hospital discharge process and ask a number of other questions from the sample list. I hope that you will be able to give me your honest feedback but feel free not to answer any question or all of the questions if you do not feel comfortable to answer it. There are no implications of withdrawal at any time.

Payment

No payment will be offered to the participants.

Confidentiality

To maintain confidentiality participants' name and place of work will be pseudonyms. All aspects of the study will be confidential and access to the information on participants is restricted to the researcher.

Storage of Data

Storage of the data collected will adhere to the University regulations and kept on University premise in a locked cupboard/ filling cabinet for 5 years. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

Result

If you would like to be informed of the aggregate research finding, please contact Mohammed Alshammari [redacted]

If you would like to contact the researchers about any aspect of this study, please contact the chief investigator:	If you have a complaint concerning the manner in which this research " Extremities injury in Saudi Arabia" is being conducted, please contact:
Dr Virginia Plummer [redacted]	Faiz Alanizi [redacted]

For Phase Two: orthopaedic nurses (Arabic)

شرح المقابله

اصابة الاطراف في السعوديه
التحقيق في الأنظمة والخدمات لدعم التعافي

اصابة الأطراف دائما تكون مفاجئه وغير متوقعه في حياة الانسان واحيانا تشكل صعوبات واعاقه للبعض. هذه الاصابه ربما تؤثر علي الحركه بشكل عام وتعيق الأنشطه والآداء الوظيفى والصحه بشكل عام
ادعوك لتكون جزء من هذه الدراسة وارجوا قرآه شرح الاستبيان كاملا قبل اتخاذ القرار في المشاركه.
انا محمد الشمري اقوم بعمل بحث مع الدكتورة فيرجينيا بلمر والدكتورة ميريدث ماكنتاير في كليه الطب والتمريض في جامعه موناش في استراليا لدرجة ألدكتوراه وسوف انشر رسالة ما يقارب من ٣٠٠ صفحه

الاهداف والفوائد المرجوة من البحث
هدف البحث هو النظر في الاجراءات المتبعه والخدمات للمرضي الذين اصابتهم كسور في الاطراف وشرح تجربة العلاج في ألمنزل بدلا من المستشفي. الفائدة المرجوة هي النظر في طرق لتحسين اجراءات الخروج في المستقبل و الخدمات للمرضي الاخرين المصابين بالكسور وكيفيه العناية بهم.

ماذا يتطلب البحث
الدراسة سوف تكون علي شكل مقابله حواريه مفتوحة وهى للمرضى الذين اصابتهم كسور اما في الايدى او الارجل وخرجوا من لتكملة العلاج في البيت. والمقابله سوف تكون مترجمه ومسجله ويمكن لك مراجعة نسخه من الترجمه

كم من الوقت يستغرق
تستغرق المقابله مابين ٢٠ و ٣٠ دقيقه ومن الممكن ان تكون في أي مكان ملائم لك

المضايقه او عدم الراحة
هناك اسأله في الاستبيان عن تجربتك في المستشفي والخروج الي البيت. ربما يكون استرجاع ماحدث تجربه مؤلمه.
اتمنا ان احصل على تجربتك الصادقه ويحق لك الانسحاب في اي وقت بدون اي عواقب

مكافئه
لا يوجد اي مكافئه موضوعه للاشتراك في البحث

الخصوصية
نضمن لك ان الاستبيان سوف يكون بسريه تامة ولا يوجد احد له الحق غير الباحثين في الحصول علي اي معلومة او التعرف على المشاركين

حفظ البيانات

جميع المعلومات سوف تحفظ علي حسب انظمة جامعة موناش في خزينة مقفله لمدة خمس سنوات وبعدها سوف تتلف والتقرير النهائي سوف ينشر ولكن بدون ذكر لأى اسم

النتيجة
اذا ارت الحصول على النتيجة النهائيه للبحث يمكنك الاتصال او ارسال ايميل لصاحب البحث محمد حمدان الشمري ٠٥٣٣٠٠٠٣٤٧ او ٠٠٦١٤٩٩٩٠٥٥٥٥
[redacted]

اذا كان لديك اي شكوى بموضع البحث او له علاقة في البحث يمكنكم الاتصال على	اذا ارت ان تتواصل مع الباحث الرئيسي يمكنك الاتصال علي
فايز العنزي [redacted]	دكتوره فيرجينيا بلمر تلفون ٠٠٦١٣٩٩٠٤٤٠٦٤ فاكس ٠٠٦١٣٩٩٠٤٤٦٥٥ [redacted]

Appendix D: The Invitation Letters

For questionnaire (English)

Research Participants Invitation

(For patients with limb trauma)

I am researching in the area of limb trauma and interested in talking to patients patients who received treatment for injuries to their arms or legs, and are here for follow up appointment. I am conducting this research as part of my doctoral studies in Australia at Monash University.

I would like to invite you to participate in my study. Mainly the interview will be for patients who had limb injury and are now recovering in the home environment.

If you are interested in participating and would like to read an explanatory statement, please contact me on either my mobile or email address below.

[redacted]

Thank you
Mohammed Alshammari

For questionnaire (Arabic)

بِسۡمِ ٱللَّهِ ٱلرَّحۡمَٰنِ ٱلرَّحِيمِ

دعوه للمشاركة في بحث
للمرضي ذوي الاطراف المكسورة

السلام عليكم ورحمة الله وبركاته وبعد

أريد التواصل مع المرضي الذين حصل لهم كسور اما في الايدي او الارجل لعمل بحث كجزء من

رسالة دكتوراه في جامعة موناش في إستراليا.

ادعوك للمشاركة في بحثى والمقابله سوف تكون للمرضي الذين اصيبوا بكسور في الاطراف وخرجوا

من المستشفي لتكملة الشفاء في المنزل.

اذا كان لديك رغبه بالمشاركه اوتريد شرح اكثر حول البحث ارجوا التواصل معى على رقم جوالى او

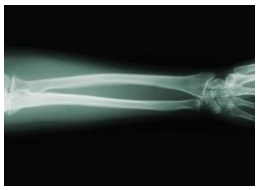
على الأيميل وشكرا.

محمد حمدان الشمري
٠٥٣٣٠٠٠٣٤٧

[redacted]

For Interviewer

Advertisement



Perspectives on the discharge planning process for patients with orthopaedic limb injury:

An interview with Nurses

We are a group of Saudi and Australian researchers in the School of Nursing and Midwifery at Monash University. We are conducting research in an attempt to understand nurses' views about discharge planning for patients who have limb injury (excluding major cases such as spinal and skull fractures).

We are inviting a small number of nurses who work in Orthopaedic Department wether inpatient, outpatients, or Emergency Department to participate, by answering some questions similar to those listed below.

This is an opportunity for nurses to express feelings in regards to health systems and care processes.

Your valuable feedback will contribute to our understanding of what nurses and patients prefer in discharge preparation and education and is likely to provide significant benefits for future system development.

If you are interested in participating, please take an explanatory statement and respond to the email below, if not there is no obligation to participate.

Thank you

Mohammed Al Shammari

Appendix E: Tool

For Phase One questionnaire (Arabic)

الجزء الأول: المعلومات الديموغرافية

١. ما هو عمرك؟ .....

٢. ما جنسك؟

( ) ذكر ( ) أنثى

٣. الجنسية

( ) سعودي ( ) غير سعودي

٤. مستوى التعليم:

( ) متوسط فاقل ( ) مازلت في المرحلة الثانوية ( ) أكملت الثانوية

( ) دبلوم ( ) بكالوريوس ( ) ماجستير ( ) دكتوراه

٥. مع من تسكن؟

( ) أسكن بمفردي ( ) مع أصدقائي ( ) مع عائلتي

٦. هل أنت مصدر الدخل الرئيسي للبيت؟

( ) نعم ( ) لأ

٧. الحالة الوظيفية؟

( ) موظف على رأس العمل ( ) غير موظف ( ) طالب

( ) موظف ولكن في إجازة ( ) متقاعد ( ) أخرى .....

٨. ما هو سبب الإصابة؟

( ) حادث سيارة (سائق) ( ) حادث سيارة (غير سائق) ( ) حادث دراجة نارية

( ) بسبب سقوط او طيحة ( ) رياضة مثل لعب الكرة ( ) مشاجرة ( ) اخرى.....

٩. اين كانت الإصابة؟

( ) أثناء العمل الرسمى ( ) في العمل المنزلي ( ) خارج البيت

١٠. موضع الإصابة (يمكنك وضع أكثر من اختيار)

( ) اليد إليمنى ( ) اليد اليسرى ( ) الرجل اليمنى

( ) الرجل اليسرى ( ) أخرى.....

١١. ما هي اليد الأكثر استخداما قبل الإصابة؟

( ) اليد اليمنى ( ) اليد اليسرى

١٢. كيف كانت طريقة علاجك؟

( ) جبيرة في الطوارئ فقط ( ) جبيرة مع تعديل الكسر في الطوارئ

( ) عملية جراحية شاملة مع صفايح ومسامير تثبيت ( ) أخرى .....

٢

١٣. هل لديك مشاكل صحية أخرى؟

( ) ليس لدي مشاكل ( ) مشاكل في القلب ( ) المفاصل

( ) سكر ( ) مشاكل في التنفس ( ) ضغط

( ) مشاكل نفسية ( ) هشاشة عظام ( ) اخرى.....

١٤. هل لديك إصابة سابقة في الأطراف؟

( ) لا ( ) نعم

١٥. هل رقدت في المستشفى بسبب الإصابة؟

( ) نعم المدة.....ايام ..... اسابيع ..... ( ) لا

الجزء الثاني طريقة العلاج: الطوارئ أو العيادات الداخلية

١٦. كيف تصف التحضير لخروجك من المستشفى؟

( ) ضعيف جدا ( ) ضعيف ( ) مقبول ( ) جيد ( ) ممتاز

١٧. كيف كان شرح تعليمات العناية بك في المنزل؟

( ) لم أعطَ أية تعليمات ( ) ضعيف جدا ( ) ضعيف ( ) مقبول ( ) جيد ( ) ممتاز

١٨. هل كانت تعليمات العناية بنفسك

( ) شفوية غير عربي ( ) شفوية عربي

( ) ورقيه ( ) وصفيه

١٩. من قام بإعطائك تعليمات العناية بنفسك (يمكنك وضع أكثر من اختيار)؟

( ) التمريض ( ) الدكتور ( ) فني العظام

٢٠. هل اضطررت للرجوع إلى الطوارئ من دون موعد مسبق للرجوع؟

( ) نعم كم مرة ..... ( ) لا

٢١. إذا رجعت للطوارئ ما هو سبب رجوعك؟

( ) مضاعفات بسبب الجبيرة ( ) بسبب الآلام ( ) مشاكل في الأدوية

( ) بسبب نزيف ( ) أخرى .....

٢٢. بسبب الإصابة هل لك موعد؟ مع مَنْ؟

( ) العلاج الطبيعي ( ) العلاج الوظيفي ( ) طبيب العظام

( ) الموظف الاجتماعي ( ) ليس لدي موعد محدد ( ) أخرى .....

٢٣. هل منحت إجازة مرضية للعمل؟

( ) نعم لمدة .....أيام.....أسابيع.....أشهر ( ) لا

٢٤. هل سبق لقريب أو صديق لك قد ترك عمله ليعتني بك بعد إصابتك؟

( ) نعم ( ) لا

٢٥. هل لديك جروح غير ملتئمة؟

( ) نعم ( ) لا

٢٦. هل أخذت علاجًا بديلاً غير علاجك الرئيسي؟

( ) لا لم أخذ ( ) نعم بعض الأعشاب مثل الحلبة ( ) نعم علاجًا دينيًا

الجزء الثالث: القدرة على الحركة

الأسئلة التالية عن قدرتك على العناية بنفسك والقدرة على الحركة. أرجو وضع دائرة أمام الجواب المناسب:

٢٧. هل واجهت صعوبة في:

	إستطعت بدون بصعوبة			لم استطع	غير مطابق
العناية بنفسك مثل الأكل واللبس والاستحمام	١	٢	٣	٤	٥
التنقل من \ إلى الكرسي أو السرير	١	٢	٣	٤	٥
المشي داخل المنزل أو حوله	١	٢	٣	٤	٥
المشي عدت خطوات	١	٢	٣	٤	٥
صعود الدرج	١	٢	٣	٤	٥
العمل في المنزل؛ كالتصليحات والتنظيف	١	٢	٣	٤	٥
قيادة السيارة او استخدام المواصلات العامة	١	٢	٣	٤	٥
الأنشطة العنفية، مثل الركض أو رفع جسم ثقيل	١	٢	٣	٤	٥
زيارة أقاربك او أصدقائك؟	١	٢	٣	٤	٥
أداء الأنشطة الدينية مثل الصلاة؟	١	٢	٣	٤	٥
رعاية شخص آخر كأحد أفراد العائلة مثلاً؟	١	٢	٣	٤	٥

٢٨. خلال فترة التعافي في المنزل:

	نعم في جميع الأحيان				كلا أبدًا
هل كنت خائفًا كثيرًا؟	١	٢	٣	٤	٥
هل كنت شخص هادئاً ومستريحًا؟	١	٢	٣	٤	٥
هل كنتَ كئيبًا وحزينًا؟	١	٢	٣	٤	٥
هل كنت سعيدًا؟	١	٢	٣	٤	٥
هل كنت تشعر بالإحباط بحيث لا شيء يسعدك؟	١	٢	٣	٤	٥
هل كنت منعزلاً عن المجتمع؟	١	٢	٣	٤	٥
هل كنت تعامل الآخرين بعطف؟	١	٢	٣	٤	٥
هل كنت سريع الغضب؟	١	٢	٣	٤	٥
هل كثرت طلباتك من عائلتك؟	١	٢	٣	٤	٥
هل أصبح لك اصدقاءُ جدد؟	١	٢	٣	٤	٥

٢٩. بشكل عام كيف تقيم صحتك؟

( ) ضعيفة جدا ( ) ضعيفة ( ) مقبولة نوعا ما ( ) جيدة ( ) ممتازة

٤

الجزء الرابع: أسئلة مفتوحة

بشكل عام كيف كانت تجربتك للخروج من المستشفي والتعافي في المنزل؟

.....

.....

.....

لو كان في وسعك أن تغير شيئًا ما، لطريقة العنايه بك وخروجك من المستشفي ما الذي سوف تغيره؟

.....

.....

.....

For Phase one questionnaire (English)

MONASH University

Part One: Demographic Questionnaire

1. What is your age? .....
2. What is your Gender?
   ( ) Male ( ) Female
3. What is your nationality?
   ( ) Saudi ( ) non Saudi
4. What is your level of education?
   ( ) I have not finished school ( ) Still in secondary school
   ( ) Completed secondary school ( ) Diploma
   ( ) Bachelor ( ) Masters ( ) PhD
5. Who are you currently living with?
   ( ) I live alone ( ) with friends ( ) with family
6. Do you provide the main source of income for your household?
   ( ) Yes ( ) No
7. What is your current employment status?
   ( ) Employed (still working) ( ) Unemployed ( ) Student
   ( ) Employed (on leave) ( ) Retired ( ) Other.....
8. What is the cause of your injury?
   ( ) Vehicle Accident 'driver' ( ) Motorcycle accident ( ) Sport
   ( )Vehicle Accident 'Passenger' ( ) Assault ( ) fall
   ( ) Other.....
9. Where it happened?
   ( ) at school or work ( ) at home ( ) outside home
10. Please indicate the location of your injury/ies (You may choose more than one)
    ( ) Right Hand ( ) Left Hand ( ) Right leg ( ) Left leg ( ) others.....
11. Which is your dominant hand?
    ( ) Right ( ) Left
12. What is your medical management?
    ( ) Only plaster cast in emergency department
    ( ) Plaster cast with manipulation in ED
    ( ) Surgery in operational theatre including pins, screw and plate
    ( ) Others .....
13. Do you have any other medical problems?
    ( ) I do not have ( ) Heart problems ( ) Arthritis
    ( ) Diabetics mellitus ( ) Breathing problems ( ) Blood Pressure
    ( ) Mental health condition ( ) Osteoporosis ( ) Other .....
14. Have you had a previous limb trauma?
    ( ) No ( ) Yes
15. Were you admitted to hospital because of your injury?

    ( ) No ( ) Yes, if so, for how long?.....days.....weeks.....months

Part Two: Pattern of treatment questions- ED or Inpatient

16. How would you describe your preparation for discharge?
( ) Very Poor ( ) poor ( ) Average ( ) Good ( ) Very Good

17. How clear were the instructions given about how to care for yourself at home?

( ) No one gave me instructions ( ) Very poor ( ) poor
( ) Average ( ) Good ( ) Very Good

18. How were those instructions provided?

( ) Verbal in your language ( ) Verbal not in your language
( ) paper instruction ( ) demonstration e.g. fit a sling

19. If instructions given who gave these instructions? select more than one if applicable

( ) Nurses ( ) Doctors ( ) Cast Technicians

20. Have you had an unplanned return to Emergency Department?

( ) Yes ( ) No
How many times? ……..

21. If you have returned to the ED, why did you return? You may choose more than one

( ) Cast complications ( ) Pain ( ) Medication problems
( ) Bleeding ( ) Other……

22. Due to the injury, have you had or will have appointments with any of the following?

( ) Physiotherapy ( ) Occupational therapy ( ) Orthopaedic Doctor
( ) Social worker ( ) No appointments ( )Other ……..

23. Have you been on sick leave from employed work?

( ) Yes
If so, how many ……days ……..weeks ……..months

( ) No

24. Have any family members or friends taken time off from their job or family duties to take care of you after your trauma?
( ) Yes ( ) No

25. Do you have any unhealed wounds?
( ) Yes ( ) No

26. Did you take any of the alternative provider to the original treating health service?
( ) NO ( ) YES, I had fenugreek ( ) Yes, Ritual therapist

MONASH University

Part Three: Functional Status Questionnaire

The following questions ask about your abilities to care for yourself and to move about. Please circle the most appropriate number for each of the following questions.

27. Have you had difficulty:

	No Difficulty				unable to do	Inapplicable
Taking care of yourself i.e. eating, dressing or bathing?	1	2	3	4	5	
Moving in or out of a chair bed?	1	2	3	4	5	
Waling indoor, such as around your home?	1	2	3	4	5	
Walking several blocks?	1	2	3	4	5	
Climbing one flight of stairs?	1	2	3	4	5	
Doing work around the house, such as cleaning, home maintenance?	1	2	3	4	5	
Driving a car?	1	2	3	4	5	
Doing vigorous activities such as running, lifting heavy objects?	1	2	3	4	5	
Visiting with relatives or friends?	1	2	3	4	5	
Participating in religious activities, such as praying?	1	2	3	4	5	
Taking care of other people such as family member?	1	2	3	4	5	

28. During recovery time at home:

	All of the time				Non of time
Have you been a very nervous person?	1	2	3	4	5
Have you felt calm and relaxed?	1	2	3	4	5
Have you felt downhearted and blue?	1	2	3	4	5
Have you been a happy person?	1	2	3	4	5
Did you feel so depressed that nothing could cheer you up?	1	2	3	4	5
Isolated yourself from people around you?	1	2	3	4	5
Acted affectionate toward others?	1	2	3	4	5
Acted irritable toward those around you?	1	2	3	4	5
Made unreasonable demands on your family and friends?	1	2	3	4	5
Gotten along well with other people?	1	2	3	4	5

29. In general, how would you rate your overall health?

( ) Poor ( ) Fair ( ) Good ( ) Very good ( ) Excellent

Part four: Open-ended questions

In general, what has your experience been like recovering at home?

……
……
……

If you could have changed some things along the way what would you have changed?

……
……
……

For phase two (Semi- Structured Interviews)

1. How long have you been working here as an orthopaedic nurse?
2. How would you describe the current discharge planning process? Is it systematic?
3. Which parts of the system 'works' and which do not?
4. Do you document your discharge plan?
5. What instructions do you give to patients? How do you provide it?
6. Who design this information?
7. What are the most difficult things been as orthopaedic cast nurse?

Interview Questions for fatalism

1. What do you understand of fate and destiny?
2. If road accident is in our fate, can we avoid it?
3. What do you think of fate's role in a trauma and risk taking?
4. Do you believe in evil eye?
5. Do you think evil eye can contribute in events?
6. Do you think that it can lead to injury?
7. Do you use seatbelt when you drive?
8. Do you think fate is an important element in our lives?