



**UNIVERSITI PUTRA MALAYSIA**

***EVALUATION OF ADL SELF-MANAGEMENT MODULE ON QUALITY OF LIFE AMONG ROAD TRAFFIC CRASH PATIENTS WITH LOWER EXTREMITIES FRACTURES IN TAIF CITY HOSPITALS, SAUDI ARABIA***

**MAJED EIDAH ALTHOMALI**

**FPSK(p) 2019 33**



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By

**MAJED EIDAH ALTHOMALI**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,  
in Fulfillment of the Requirements for the Degree of Doctor of Philosophy**

**June 2019**

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in Fulfillment of the Requirements for the Degree of Doctor of Philosophy

**EVALUATION OF ADL SELF-MANAGEMENT MODULE ON QUALITY OF LIFE AMONG ROAD TRAFFIC CRASH PATIENTS WITH LOWER EXTREMITIES FRACTURES IN TAIF CITY HOSPITALS, SAUDI ARABIA**

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**June 2019**

**Chairman : Associate Professor Muhamad Hanafiah Juni, MD, MPH**  
**Faculty : Medicine and Health Sciences**

**Background:** Road traffic crashes have elicited concern from the community and the government in Saudi Arabia and worldwide. Moreover, Road traffic crashes can lead to injuries, disabilities and deaths. Injuries from Road traffic crashes are among the main causes of physical and functional disabilities. Therefore, the ability of the injured patient, especially those with fractures, to self-perform activities of daily living is severely affected due to restricted physical and functional roles. Subsequently, quality of life is affected negatively as well.

**Aim:** To develop, implement and evaluate the impact of the “ADL self-management module” on the health related quality of life among Road traffic crashes patients with lower extremity fractures.

**Methods:** The study design was a repeated measure quasi experiment with a control group. The study was conducted in Saudi Arabia, Taif City at two Ministry of Health hospitals. The study included patients who were admitted to the orthopedic units at the study hospitals with lower extremity fractures due to Road traffic crashes with difficulties in carrying out activities of daily living with a Barthel Index screening score ranging from 15 to 80. The patients in the intervention group were provided with an activity of daily living self-management intervention that was developed based on the individual and family self-management theory to improve quality of life. The control group received usual hospital care. The primary outcome was the quality of life measured using the EQ5D instrument. The secondary outcomes include patient activation for self-management and activity of daily living that were measured using PAM13 and Barthel Index instruments. The outcomes were measured at baseline, one month and four months post intervention. Data was analyzed using SPSS 23.

**Results:** One hundred sixty patients agreed to participate with eighty patients in each group. The response rate was 91.5%. At four month follow up, seventeen and twenty two patients dropped out from the intervention and control group respectively. At baseline, the mean scores for quality of life were  $51.03 \pm 11.71$  for intervention and  $48.965 \pm 13.66$  for the control group while the activity of daily living were  $30.08 \pm 12.03$  for intervention and  $31.29 \pm 13.558$  for the control group. Patient activation was  $61.87 \pm 13.307$  for intervention and  $59.90 \pm 12.148$  for the control group. Excluding the drop outs, there were no significant differences between the groups in participants' characteristics and outcomes of interest at baseline ( $P > 0.05$ ). In both measurements post intervention, health related quality of life as measured by EQ-VAS had improved significantly within and between intervention and control groups ( $P < 0.001$ ). On the other hand, EQ5D showed that pain/discomfort and depression/ anxiety domains did not differ significantly between groups. Activities of daily living and patient activation had improved significantly within and between groups as well ( $P < 0.001$ ).

**Conclusion:** The intervention had a positive impact on research outcomes. Quality of life as the primary outcome had improved significantly within and between groups. This result was associated with an improvement in the secondary outcomes where patient activation and ability to perform activities of daily living independently had improved as well.

**Keywords:** Road traffic crashes, activities of daily living, health related quality of life, self-management intervention, Taif City Hospitals.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**PENILAIAN TERHADAP MODUL PENGURUSAN AKTIVITI KEHIDUPAN SEHARIAN KENDIRI TERHADAP KUALITI KEHIDUPAN DALAM KALANGAN PESAKIT KEMALANGAN JALAN RAYA YANG MENGALAMI PATAH KAKI DI HOSPITAL BESAR TAIF, SAUDI ARABIA**

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**Latar belakang:** Kemalangan jalan raya telah menimbulkan kebimbangan masyarakat setempat, kerajaan di Arab Saudi dan seluruh dunia. Tambahan pula, kemalangan jalan raya boleh menyebabkan kecederaan, ketidakupayaan dan kematian. Kecederaan daripada kemalangan jalan raya merupakan antara penyebab utama ketidakupayaan fungsi dan fizikal. Oleh hal yang demikian, keupayaan pesakit yang cedera, terutamanya pada bahagian yang patah, telah menjejaskan aktiviti seharian sendiri kerana kekangan peranan fungsi dan fizikal. Akibatnya, kualiti kehidupan turut menjadi negatif.

**Tujuan:** Untuk membangunkan, melaksana dan menilai kesan “Modul pengurusan aktiviti seharian sendiri” terhadap kualiti kehidupan dalam kalangan pesakit kemalangan jalan raya yang mengalami patah kaki.

**Kaedah:** Reka bentuk kajian adalah pengulangan eksperimen kuasi dengan kumpulan yang terkawal. Kajian ini telah dijalankan di dua buah hospital Kementerian Kesihatan di bandar Taif, Arab Saudi. Kajian ini melibatkan pesakit yang mengalami patah kaki dan telah dimasukkan ke unit ortopedik di hospital kajian akibat kemalangan jalan raya serta menghadapi kesukaran dalam melakukan aktiviti harian dengan menggunakan skor pemeriksaan Index Barthel antara 15 ke 80. Pesakit dalam kumpulan intervensi telah disediakan dengan intervensi pengurusan aktiviti kehidupan seharian sendiri yang dibangunkan berdasarkan teori peningkatan pengurusan sendiri individu dan keluarga. Kumpulan terkawal ini menerima rawatan rutin hospital. Hasil utama kajian ialah kualiti hidup yang diukur dengan menggunakan EQ5D. Hasil sekunder pula melibatkan keaktifan pesakit bagi pengurusan dan aktiviti kehidupan

seharian sendiri yang diukur dengan PAM13 dan instrument Index Barthel. Hasilnya diukur pada permulaan, satu bulan dan empat bulan selepas intervensi.

**Hasil:** Satu ratus enam puluh pesakit bersetuju untuk menyertai dan terdapat lapan puluh pesakit dalam setiap kumpulan. Kadar tindak balas ialah 91.5%. Selepas empat bulan rawatan susulan, tujuh belas dan dua puluh dua pesakit telah meninggalkan kumpulan terkawal dan intervensi masing-masing. Pada peringkat awal, skor min bagi kualiti hidup adalah  $51.03 \pm 11.71$  untuk intervensi dan  $48.965 \pm 13.66$  untuk kumpulan terkawal manakala skor untuk intervensi aktiviti kehidupan seharian pula  $30.08 \pm 12.03$  dan  $31.29 \pm 13.558$  untuk kumpulan terkawal. Keaktifan pesakit pula  $61.87 \pm 13.307$  untuk intervensi dan  $59.90 \pm 12.148$  bagi kumpulan terkawal. Jumlah patah tulang, kecederaan yang berkaitan dan tahap pendidikan didapati telah menjadi penentu untuk kualiti kehidupan, aktiviti kehidupan seharian dan keaktifan pesakit. Selepas mengecualikan pesakit yang keluar, tidak terdapat perbezaan yang signifikan antara karakter peserta dalam kumpulan dan hasil minat pada peringkat awal ( $P > 0.05$ ). Pada kedua-kedua pengukuran intervensi, kualiti kehidupan yang berkait dengan kesihatan telah meningkat dengan ketara dalam dan antara kumpulan terkawal dan intervensi ( $P < 0.001$ ). Begitu juga dengan aktiviti kehidupan seharian dan keaktifan pesakit yang bertambah baik ( $P < 0.001$ ).

**Kesimpulan:** Intervensi telah memberikan kesan yang positif dalam hasil kajian. Kualiti kehidupan sebagai hasil utama telah meningkat dengan ketara dalam dan antara kumpulan. Hasil kajian ini berkait dengan peningkatan dalam hasil sekunder di mana keaktifan pesakit dan keupayaan untuk melakukan aktiviti harian dengan bebas bertambah baik.

**Kata kunci:** Kemalangan jalan raya, aktiviti kehidupan seharian, kualiti kehidupan yang berkait dengan kesihatan, pengurusan intervensi sendiri, hospital bandar Taif

## ACKNOWLEDGEMENTS

The authors would like to thank all members of supervisory committee for their contribution and guidance in preparing and writing this thesis, and also to members of Department of Community Health, Faculty of Medicine and Health Sciences for their support during carrying out the research and thesis writing. Acknowledgement also is extended to MOH in Saudi Arabia, Taif Health Affairs, King Abdul Aziz Hospital, King Faisal Hospital and their staff for cooperation and support during data collection stage.





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## LIST OF ABBREVIATIONS

ADL	Activity of Daily Living
BI	Barthel Index
CDSI	Central Department of Statistics and Information
CFA	Confirmatory Factor Analysis
ETSC	European Transport Safety Council
EQ-VAS	European Quality of Life Visual Analogue
EQ5D	European Quality of Life 5 Dimensions
FIM	Functional Independence Measure
HRQOL	Health Related Quality of Life
ICF	The International Classification of Functioning, Disabilities and Health
IFSMT	Individual and Family Self-Management Theory
MANOVA	Multivariate Analysis of Variance
MANCOVA	Multi Variate Analysis of Co-Variance
MENA	Middle East and North Africa
MLR	Multiple Linear Regression
QOL	Quality of Life
QALY	Quality-Adjusted Life Year
PAM	Patient Activation Measure
PTSD	Post-Traumatic Stress Disorder
RTA	Road Traffic Accident
SF36	Short Form 36 Items
USD	United State Dollar
WHO	World Health Organization

# CHAPTER 1

## INTRODUCTION

This chapter has eight sections. These sections include the research background about Road traffic crashes (RTC), RTC in Saudi Arabia, problem statement, as well as the research questions, objectives and hypotheses. It also includes significant of the research and definitions of the most common terminology that are used in this research.

### 1.1 Background

Road traffic crashes injuries are considered to be a major health problem in Saudi Arabia and worldwide (Ageli & Zaidan, 2013; Barrimah, Midhet, & Sharaf, 2012). Many countries all over the world especially developing countries are confronted with a high incidence of RTC, which consequently leads to injuries, disabilities and deaths (Al Turki, 2013). A global status report on road safety by the World Health Organisation (2018) states that RTC account for tens of millions of injuries and 1.35 million deaths every year worldwide, and 90% of them are from low and middle income countries. It is also reported that RTC are the leading cause of death among the younger part of the population aged 5 to 29 years old (WHO, 2018b). Road traffic deaths rate in low and middle income countries are more than the double compared to road traffic deaths in high income countries (WHO, 2015). African and by the south east countries represent the highest global incidence of road traffic deaths (WHO, 2018b). More than half of RTC injured individuals experienced lower extremity fractures; 92% of them had low to moderate functional dependencies (Peyman et al., 2016). Injuries due to RTC cause significant impact on Health related quality of life (HRQOL) (Gamsiz Bilgin, Mert, & Sezgin, 2012).

As individuals life expectancy increased due to advanced diagnostic technologies, newer treatment modalities and interventions that reduced diseases mortality and delayed symptoms, it become necessary to find a measurement method to examine these new health strategies on patients quality of life and well-being (European Patients' Academy, 2016). Therefore, HRQOL has become well recognized worldwide as an central element to evaluate the impact of disease and health intervention on quality of life (Ghosh, Ghosh, & Ganguly, 2010). Assessing HRQOL provides a precise method to evaluate the quality of health care services, patients health caregiver interactions, effectiveness of health interventions and insight to health research on effect of diseases on patients well-being (WHO, 2019).

There are a lot of studies that focus on the number of deaths and injuries caused by RTC and other types of trauma, however, the outcomes of RTC go beyond the number of survivors; It is also significant to consider the extent to which HRQOL is affected (Alghnam, Alkelya, Al-Bedah, & Al-Enazi, 2014; Holtslag et al., 2008). Health related quality of life is considered to be one of the long term health outcomes

indicators in people with RTC injuries. A large portion of RTC victims suffer from different types of physical, psychological, social and functional injuries and disabilities which then affect their well-being and HRQOL negatively (Hassan, 2010; Pashaei Sabet et al., 2016). Furthermore, HRQOL is more affected in individuals with lower extremity fractures due to RTC injuries (Ohlin, Berg, Lie & Algurén 2016).

Road traffic crashes' survivors with functional disabilities due to physical and psychological injuries are vulnerable towards having a poor HRQOL (Undavalli, Das, Dutt, Bhoi, & Kashyap, 2014). Moreover, functional disabilities affecting activities of daily living (ADL) would predict the level of HRQOL for patients with fractures caused by RTC or other types of trauma injuries (Zhang et al., 2012). Thus, RTC injuries place a big burden on acute care hospitals and long term rehabilitation centers due to the physical and functional disabilities involved (Ageli & Zaidan, 2013).

Rehabilitation services play an essential role in empowering injured patients who have difficulty performing ADL to participate in their own care process. Participation of patients in management of self-care enables independency and improves health status outcomes (Ryan & Sawin, 2009; Shahahmad, Khan, Batais, & Gaumer, 2018). In addition, rehabilitation interventions that focus on self- management and self-care are good approach towards promoting better HRQOL (Tung et al., 2013).

## **1.2 Road Traffic Crashes in Saudi Arabia**

Saudi Arabia is considered to be a high income country. According to the Saudi Arabia General Authority for Statistics (2018), the total population of Saudi Arabia is 32 million. Sixty percent of health services in Saudi Arabia are delivered by the MOH as the major provider whereas the remaining 40 % is divided into 9% being provided by the other governmental sectors such as Armed Forces, National Guard and Internal Security Forces and 31% of health services are provided by private sectors (MOH, 2016). In 2014, the appropriation in the Saudi budget for MOH and Red Crescent Agency (SRCA) was approximately 16 billion USD (MOH, 2014). The health expenditure per capita in 2014 was 1147 USD compared to 221 USD in 1995 (The World Bank, 2016). As a direct cost, RTC burden Saudi Arabia by more than 6 billion USD (Al-Atawi, Kumar, & Saleh, 2014).

The most common way of transportation in Saudi Arabia is motor vehicle cars. This is due to the limited availability of alternative transportation ways. In addition, the vast roads networks that cover large spaces of Saudi land, the improvement of socioeconomic ranks and the individual high income rates have resulted in a significant increase in RTC in Saudi Arabia (Ansari, Akhdar, Mandoorah, & Moutaery, 2000). As reported by WHO (2015b), the mortality rate of RTC in 2013 is about 27.4 per 100,000 of population. In the same context, RTC still rank second among the most common causes of deaths and premature deaths in Saudi Arabia (Institute for Health Metrics and Evaluation, 2018). According to the Saudi Arabia MOH (2013), injuries together with poisoning and external causes are responsible for

10402 deaths, making up 21.2% of the total deaths in 2012. This is a 4% increase from 2011. It is also ranked as the highest cause of deaths among Saudi men.

The fatalities caused by RTC in Saudi Arabia are double of those in the US, and RTC victims are more vulnerable to dying in Saudi hospitals compared to the US (Alghnam et al., 2014). Similarly, in Saudi Arabia, deaths due to RTC make up more than one fifth of 31000 deaths in the European Union (Castillo-Manzano, Castro-Nuño, & Fageda, 2014). Furthermore, Saudi Arabia, Oman, Iran and Libya represent the highest number of road traffic injury mortalities among the Middle East and North African (MENA) countries due to neglected transportation safety (Dahdah, S., & Bose, 2013). Another study showed that Saudi Arabia has the third highest number of RTC among the Arab countries and the fifth among the Middle East countries (Mohamed, 2015).

Recently in 2018, the Saudi Arabia government has disregarded the banning of Saudi women driving, thus ending decades of prohibition on women driving. It is expected that 3 million women will drive in addition to 9.5 million male drivers by 2020 (Krane, Majid, & Simmons, 2018). This raises concerns on the effects of women on current RTC injuries and fatalities. There are few studies done on the effects of women driving on road safety as this issue is new in Saudi Arabia. However, a recent study conducted by Krane, Majid, & Simmons (2018) suggests that allowing women driving may decrease the number of RTC injuries and death for many reasons. Firstly, women drive slowly compared to men. They are also more adherent to driving regulations and they could reduce the long driving cycles that were consuming time and increasing traffic jams when alternatives transportations were used. Further, female drivers are less likely to be involved in RTC injuries compared to males in countries other than Saudi Arabia (Al-Aamri, Padmadas, Zhang, & Al-Maniri, 2017; Sengoelge, Laflamme, & El-Khatib, 2018; Verma, Gupta, Kaushal, & Singh, 2015). Therefore, no changes are expected on the distribution of gender among injuries due to RTC.

The burden faced by the facilities and organizations in the Saudi MOH due to RTC injuries is very high. Road traffic accident injuries are responsible for one fifth of patients admitted to Saudi MOH facilities and health organizations (Ageli & Zaidan, 2013). Saudi health authorities initiated actions to overcome the increased number of RTC injured victims as it has a strong influence on financial, economical, and national human resources. These patients with injuries resulting from RTC require immediate emergency medical interventions such as admission, hospitalization, surgeries, and rehabilitation that should be delivered in a high quality manner in order to save their lives and maintain their health status. Therefore, this necessitates the presence of organized, appropriate and comprehensive healthcare services to attend to the high number of RTC victims.

Health care authorities together with health organizations such as hospitals, civil defense and Red Crescent in Saudi Arabia initiated steps to overcome the elevated number of RTC victims by providing prompt healthcare services. For instance, they started to allocate emergency teams and emergency ambulance centers that are fully

equipped with all emergency supplies and trained manpower, and distributed these along highways with high accident rates both inside and outside the cities. According to the Ministry of Health Saudi Arabia (2016), the Saudi Red Crescent as an emergency resuscitation and transportation health services agency has provided emergency services to 23229 RTC injuries which represent 31% of the total cases served in 2016. In response to that, hospitals were prepared with specialized staff, diagnostic equipment and facilities to receive and provide health services to RTC patients including admission, surgery, referral or treatment during their hospitalization period. Saudi MOH hospitals have provided emergency services for 196133 injuries due to RTC and 80% of them were male victims (MOH, 2014). In contrast, to our best of knowledge, there are no specific programs for RTA patients with disabilities or their carers to improve self-management of ADL and HRQOL.

### **1.3 Problem Statement**

A significant number of RTC victims in Saudi Arabia have poor HRQOL as a result of different degrees of disabilities that constrain their daily self-care activities (Hokkam, Gonna, Zakaria, & El-Shemally, 2015; Robert & Zamzami, 2013). Moreover, RTC in Saudi Arabia have resulted in 611000 injuries in the last twenty years where 7% of them have developed permanent physical and functional disabilities leading to reduced HRQOL (Al-Naami, Arafah, & Al-Ibrahim, 2010; Y. A. Al Turki, 2013). Furthermore, it has been shown that musculoskeletal problems resulting from injuries or other causes affect self-performance of ADL and HRQOL (Banerjee, Jadhav, & Bhawalkar, 2012). Besides, individuals with physical disabilities due to RTC injuries report remarkable decrements in HRQOL (Alghnam, Alkelya, et al., 2014; Gamsiz Bilgin et al., 2012). A study by Ohlin, Berg, Lie & Algurén (2016) revealed that 59% of car occupants and 44% of bicyclists road users have poor HRQOL as a result of long term problems caused by RTC injuries. In addition, RTC injuries have a profound effect on daily activities due to disabilities in physical tasks and roles leading to poor HRQOL (Barnes & Thomas, 2006). In the same context, it was shown that RTC injuries has more effect on physical aspect compared to mental aspect of HRQOL (Alghnam, 2013). Consequently, poor HRQOL and well-being as of individuals a result of RTC injuries should be addressed as they are associated with low quality of healthcare services and increased health care cost (Ryan & Sawin, 2009; WHO, 2019).

According to a WHO report from 2017, RTC ranked as the 6<sup>th</sup> cause of death in Saudi Arabia; it accounts for 8.89% (8660) of total deaths with an age adjusted death rate of 31.91 per 100,000 (World Life Expectancy, 2017). Saudi Arabia loses one person and have three injured every hour because of RTC (Al Turki, 2013). Further, as shown in Table 1.1, Makkah region that includes Taif City as one of its major cities is ranked as the first highest region in Saudi Arabia in number of injuries due to RTC (General Authority for Statistics, 2014). Moreover, according to an unpublished statistical study conducted in King Abdul Aziz Specialist Hospital (KAASH) in Taif City by Majdi (2014), there were more than 1696 RTC injured patients admitted to the hospitals within the first quarter of 2014 where the majority of them were orthopaedic cases which represented 92% of total RTC admissions where lower extremity represent 46%



of total orthopaedic cases. Sadat-Ali et al. (2015) also found out in another study that RTC are the main cause of lower extremities fractures. Therefore, those individuals with lower extremity fractures due to RTC injuries have poor HRQOL as a result of functional disability (Ohlin, Berg, Lie & Algurén 2016).

**Table 1.1 : Saudi Arabia top five regions in RTC injuries and deaths**

<b>Traffic Crashes by the first five administrative regions, 2015</b>			
<b>Region</b>	<b>NO of casualties</b>		<b>NO of accidents</b>
	<b>Death</b>	<b>Injuries</b>	
Riyadh	858	2803	147568
Makkah (including Taif, City)	2149	12237	126537
Madinah	716	4177	19058
Al-Qasim	395	1497	24273
Eastern	1030	4807	88065

Disability caused by RTC injuries place a big burden on acute care hospitals and long term rehabilitation centers (Al-Naami et al., 2010; Y. A. Al Turki, 2013). Therefore, Saudi health care authorities have to prioritize utilizing rehabilitation services to alleviate disabilities caused by RTC injuries (Al-Naami et al., 2010; Y. A. Al Turki, 2013). In contrast, rehabilitation and occupational therapy services in Saudi Arabia are insufficient to meet the increased number of disabilities caused by RTC injuries and other health conditions. Hence, there should be an early intervention and rehabilitation plan which includes educational programs for RTC injured patients and the community to prevent permanent disabilities and promote functional independency (Al Jadid, 2011; Al Turki, 2015; Aleisa, Al-Sobayel, Buragadda, & Rao, 2014; Al-Naami et al., 2010).

The health care system in Saudi Arabia has inadequate strategies and experimental researches to support patient engagement and activation to participate in self-management of their own health problems (Shahahmad et al., 2018). Thus, RTC injured survivors with functional disabilities need to learn new strategies of self-management in order to return to normal life and re-assume their social and family roles. They lack the knowledge and skills needed to reduce dependency and empower them to reach the stage where they are able to self-manage their health condition (Pashaei Sabet et al., 2016). In the same context, an improvement in functional abilities through ADL education would improve HRQOL as well (Haghgoo, Pazuki, Hosseini, & Rassafiani, 2013). Accordingly, interventions that focus on ADL self-management rehabilitation would improve the HRQOL of these injured individuals.

#### **1.4 Significance of the Research**

This research pertains to RTC injured patients who represent a significant portion of the Saudi Arabia population. In addition, there are no published studies that have examined patient activation for self-management, ADL and HRQOL among RTC injured patients previously in Saudi Arabia. Therefore, this research would add to the

existing body of knowledge in the field through evaluation of patient activation, ADL and HRQOL, and attempt to introduce an intervention module to improve HRQOL by activating self-management behavior and optimizing ADL performance for RTC injured patients with functional disabilities. This research may also be beneficial to the health system by improving the quality of care in RTC injured patients, increasing the efficiency of health services through an ADL self-management approach that encourages patient involvement in the recovery and rehabilitation process, and empowering patients with control over their health problems. Similarly, it may also shorten the recovery and rehabilitation period and hence reduce the length of hospital stay as well as lessen the financial burden (WHO, 2019). It may also benefit the patients with lower extremities fractures due to RTC by accelerating the process of engagement in ADL self-management through increasing knowledge, improve skills and confidence to maximize independency in ADL performance therefore, improve their health outcomes, HRQOL and well-being.

### **1.5 Research Questions**

- i. What are the participants' characteristics at baseline among RTC injured patients with lower extremities fractures?
- ii. What are the mean score of HRQOL, ADL and patient activation for self-management, at baseline among RTC injured patients with lower extremities fractures?
- iii. What are the differences of participants' characteristics at baseline between intervention and control groups among RTC injured patients with lower extremities fractures?
- iv. What are the differences in the mean scores of HRQOL, ADL and patient activation for self-management at baseline between intervention and control groups among RTC injured patients with lower extremities fractures?
- v. What are the differences in the mean score of HRQOL, ADL and patient activation for self-management before, after one month and four months of "ADL self-management module" intervention within and between the intervention and control group among RTC injured patients with lower extremities fractures?
- vi. What are the differences in the mean score of HRQOL, ADL and patient activation for self-management before, after one month and four months of "ADL self-management module" intervention within and between the intervention and control group while controlling of other variables among RTC injured patients with lower extremities fractures?
- vii. What are the differences in the proportion of HRQOL sub-domains, ADL dependency levels and patient activation for self-management levels before, after one month and four months of "ADL self-management module" intervention within and between the intervention and control group among RTC injured patients with lower extremities fractures?

## **1.6 Research Objectives**

### **1.6.1 General objective**

To develop, implement and evaluate the impact of “ADL self-management module” on HRQOL, ADL and patient activation for self-management among RTC injured patients with lower extremities fractures.

### **1.6.2 Specific objectives**

- i. To develop ADL self-management module for RTC injured patients with lower extremities fractures.
- ii. To determine the participants’ characteristics at baseline among RTC injured patients with lower extremities fractures.
- iii. To determine the mean score of HRQOL, ADL and patient activation for self-management, at baseline among RTC injured patients with lower extremities fractures.
- iv. To determine the differences in participants’ characteristics between intervention and control group at baseline among RTC injured patients with lower extremities fractures.
- v. To determine the differences in the mean scores of HRQOL, ADL status and patient activation for self- management at baseline between intervention and control among RTC patients with lower extremities fractures.
- vi. To implement ADL self-management intervention among RTC patients with lower extremities fractures.
- vii. To determine the differences in the mean score of HRQOL, ADL status and patient activation for self-management before, after one month and at four months of “ADL self-management module” intervention within and between intervention and control group among RTC injured patients with lower extremities fractures.
- viii. To determine the differences in the mean score of patient activation for self-management, ADL status and HRQOL before, after one month and at four months of “ADL self-management module” intervention within and between intervention and control group while controlling other variables among RTC injured patients with lower extremities fractures.
- ix. To determine the differences in the proportion of HRQOL sub-domains before, after one month and at four months of “ADL self-management module” intervention within and between intervention and control group among RTC injured patients with lower extremities fractures.
- x. To determine the differences in the proportion of ADL dependency levels before, after one month and at four months of “ADL self-management module” intervention within and between intervention and control group among RTC injured patients with lower extremities fractures.
- xi. To determine the differences in the proportion of patient activation levels before, after one month and at four months of “ADL self-management module” intervention within and between intervention and control group among RTC injured patients with lower extremities fractures.

## 1.7 Research Hypotheses

- i. There are no statistical significant differences in participants' characteristics at baseline between the intervention and control group.
- ii. There are no statistical significant differences in the mean score of HRQOL, ADL status and patient activation for self-management at baseline between the intervention and control group.
- iii. There are no statistical significant differences in the mean score of HRQOL, ADL status and patient activation for self-management within and between the intervention and control group before, after one month and at four months of "ADL self-management module" intervention.
- iv. There are no statistically significant differences in the mean score of HRQOL, ADL status and patient activation for self-management within and between the intervention and control group before, after one month and at four months of "ADL self-management module" intervention after controlling other variables.
- v. There are no statistically differences in the changes of HRQOL sub-domains within between the intervention and control group before, after one month and at four months of "ADL self-management module" intervention.
- vi. There are no statistically differences in the proportion of ADL dependency levels within and between the intervention and control group before, after one month and at four months of "ADL self-management module" intervention.
- vii. There are no statistically differences in the proportion of patient activation for self-management levels within and between the intervention and control group before, after one month and at four months of "ADL self-management module" intervention.

## 1.8 Definition of Terms

- i. **Road traffic crashes (RTC):** is defined as "any crash on a road involving at least one moving vehicle irrespective of it resulting in an injury. This could include collision with a vehicle or any non-moving object while driving/riding walking/running/standing/sitting on road, or fall from a moving vehicle" (Barrimah et al., 2012).
- ii. **Patient activation:** is the degree of engagement in which patients participate actively in the care process and self-manage and control over their health problem based on the level of knowledge, skills and confidence they have possessed (Hibbard & Gilbert, 2014).
- iii. **Self-Management: is defined as** "the day to day tasks an individuals must undertake to control or reduce the impact disease or health condition"(Clark et al., 1991) .
- iv. **Activity of Daily Living (ADL):** is defined by Mosby's Medical Dictionary, (2009) as "the activities usually performed in the course of normal day in a person's life, such as eating, toileting, dressing, bathing or brushing the teeth. The ability to perform ADL may be compromised by a variety of causes including chronic illnesses and accidents. The limitation may be temporary or permanent; rehabilitation may involve learning the new skills or learning new

ways to accomplish ADL. The goal of healthcare professional is to the greatest degree of dependence for the patient”.

- v. **Health Related Quality of Life (HRQOL):** is defined by Healthy People (2010) as “a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on quality of life”.
- vi. **Lower Extremities Fracture:** are break or crack in the continuity of the bones, that involve femur, patella, leg or foot due to injury forces such fall, RTC, sport injury, or due to pathologic cause (Farlex Partner Medical Dictionary, 2012) .



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Majed Eidah J Al Thomali, was born in Bilad Thumalah- Taif City, Saudi Arabia, in 1979. He completed his primary and secondary education from Thumalah School. He graduated with a high diploma in Nursing from Health Institute in Taif City, Saudi Arabia in 1999. Then attained bachelor degree from Hashimite University, in Zarqa City, Jordan. Later, Master degree of health services management and hospital administration was obtained in 2011 from King Abdul Aziz University in Jeddah, Saudi Arabia. He started his life career on 1999 in Giyah health center for two years then Ashuhadah Ashamalyah Health Center for six months. After that, he joined Chest Hospital as staff nurse for five years. In 2007, he joined King Abdul Aziz Hospital as staff nurse in ICU then head nurse and nurse manager until 2014. In the beginning of 2014, he worked as OPD as director assistant till the end of 2014. In 2015, he started his PhD program in UPM University until present time.

## LIST OF PUBLICATIONS

- Majed E. Al Thomali, Muhamad Hanafiah Juni, Rosliza Abdul Manaf, Hayati Kadir Shahar, **Abdelsafi Abbas Mohammed Gabbad** : *A Systematic Review on Intervention Programs to Improve Activity of Daily Living Status and Health Related Quality of Life.*
- Majed E. Al Thomali, Muhamad Hanafiah Juni, Rosliza Abdul Manaf , Hayati Kadir Shahar, Abdelsafi Abbas Mohammed Gabbad : *Impact Of “Adl Self-Management Module” On Health Related Quality Of Life Among Road traffic crashes’ Patients: A Quasi-Experimental Research Approach*
- Kaur K. K., Kay T., Auwal S. G., Salma A. M., Kamal A. I., Panmial P. D, Majed E. A., Al Malki a. a. G., Emran A. A., Faisal I, Rosliza A. M. : *A Comparison of HIV/ AIDS Health Policy in Selected Developed and Developing Countries.*
- Majed E. Al Thomali, Muhamad Hanafiah Juni, Rosliza Abdul Manaf , Hayati Kadir Shahar, Abdelsafi Abbas Mohammed Gabbad : *Effect of Activity of Daily Living Self-Management Intervention on Quality of Life among Patients with Fractures: A Pilot Study*



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