AMERICAN UNIVERSITY OF BEIRUT

FATIGUE AND BURNOUT AMONG A SAMPLE OF
LEBANESE BEDSIDE NURSES

by
HASMIG HOVHANESS TCHAPARIAN

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HASMIG HOVHANESS TCHAPARIAN

Approved by:

_____   Muchael Clinton

Dr. Clinton Michael RN, PhD; Professor in Nursing   First Reader
Hariri School of Nursing

_____   Souha Fares

Dr. Fares Suha, PhD; Assistant Professor   Second Reader
Hariri School of Nursing

Date of project presentation: February 3, 2016

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AN ABSTRACT OF THE PROJECT OF

Hasmig Hovhaness Tchaparian   for   <u>Master of Science in Nursing</u>
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Burnout and fatigue are two conditions that are commonly experienced by health care professionals. The occurrence of these conditions at work settings continuously would impact negatively on the well-being of health care professionals and the quality of patient care. The primary objective of the present study is to quantify levels of burnout and fatigue among a sample of Lebanese bedside nurses. This descriptive cross-sectional survey was conducted in inpatient units at Center C in Lebanon. Participants were 368 bedside registered nurses.

The instrument used was a combination of Occupational Fatigue Exhaustion Recovery (OFER) scale, Professional Quality of Life; version V (ProQOL) scale, and a demographic section. Results of the study indicate the presence of fatigue and burnout in moderate levels among the sample of Center C bedside nurses which raises the need for developing strategies to reduce the existing levels of burnout and fatigue, and demonstrate the need of further national studies to quantify the levels of fatigue and burnout among bedside nurses at different hospitals in Lebanon.

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CHAPTER I

INTRODUCTION

Burnout and fatigue are two conditions that are frequently experienced by health care professionals. They can occur separately and simultaneously. Nurses might encounter more than one factor related to fatigue and burnout at the same time. Studies showed that when healthcare givers are under the effect of tiredness and exhaustion concurrently, their performance would be affected extensively. As a matter of fact inappropriate work conditions would impact negatively on the work outcome especially when the fatigue is linked to nurses' health status and/or their psychological situation. Furthermore, when healthcare givers are continuously achieving tasks that requires a lot of physical and intellectual efforts they will end up in acquiring some levels of acute and chronic fatigue (Leone, Huibers, Knottnerus & Kant, 2007).

Burnout and fatigue come from different backgrounds and are conceptualized differently: fatigue comes from a medical background and is conceptualized as a general condition, whereas burnout is a type of psychological stress and leaves the perception of a job related situation (Leone, Huibers, Knottnerus & Kant, 2007).

There is an essential need for nurses to work extensive and rotating shifts (Yuan et.al, 2011). Also they frequently face stressful situations and heavy workloads (Yuan et.al, 2011).The end result of both physical and mental difficult tasks will lead to acute fatigue, chronic fatigue and burnout state (Yuan et.al, 2011).

The term "fatigue" encompasses a complex mutifactorial and overlapping constructs with different temporal associations (Winwood, Winefield, Dawson &

Lushington, 2005).Fatigue is complex, subjective, multicausal and multidimensional resulting from prolonged activity, and multidimensional aspects that have mental and physical influences simultaneously. Acute fatigue is considered a normal condition and usually disappears after some rest, whereas extended fatigue with no recovery may impair a person's daily work/life activities, can expect sickness, nonattendance and job inadequacy (Leone, Huibers, Knottnerus & Kant, 2007).

Burnout is an emotional reaction to persistent work pressure; over the past few decades there has been expanded revision of the phenomena of burnout (Halbesleben & Demerouti, 2005). Emotional exhaustion, abridged personal accomplishment, and depersonalization are originally characterized as symptoms of burnout for employees involved in jobs that require assisting others (Leone, Huibers, Knottnerus & Kant, 2007).

As per Halbesleben & Demerouti (2005) stated "Emotional exhaustion refers to feelings of being overextended and depleted of one's emotional and physical resources. Depersonalization refers to a negative, callous, or excessively detached response to various aspects of the job. Reduced personal accomplishments refer to a decline in feelings of competence or productivity at work." (Halbesleben & Demerouti, 2005).

Burnout, as classified and calculated by the Maslach Burnout Inventory (MBI), is usually related to particular types of work with high emotional demands rather than to work in general (Winwood, Winefield, Dawson & Lushington, 2005).

Potter et al. (2006) explain compassion fatigue a state that can be the result of donning elevated levels of energy and sympathy together over extensive time periods to patients,with no improvements in patients' condition. The phenomena of compassion

fatigue includes uncertainty and vulnerability and can emerge suddenly without any warning (Potter et.al, 2010).

The world health report findings (2006) in Switzerland by WHO recommended that the main concern of countries should be developing strategies that are successful in different work settings and focus on three main elements: develop effective recruitment plans, assist their present workforce carry out their tasks smoothly, and enhance retention of their employees (El-Jardali, Dimassi, Dumit, Jamal & Mouro,2009).

Nowadays health care professionals deal with major challenges for staffing .Without improvements in nurses' working conditions recruitment and retention are compromised. To identify and analyze the incidence of dissatisfaction and emotional exhaustion within health systems is vital to start implementing programs for reducing compassion fatigue and burnout in healthcare workforce. An extra step is to make available a structure for building up policies at the individual/system levels, for addressing and managing compassion fatigue and burnout in healthcare professionals (Owens, 2007). Reducing compassion fatigue and burnout will increase satisfaction and retention of health care professionals, and result in work productivity and quality of care for patients.

A. Purpose and Specific Aims

The primary aim of the present study is to identify the point occurrence of fatigue and burnout among a sample of Lebanese bedside nurses employed at Center C in Lebanon.

The objectives of the research are:

1. Quantify levels of fatigue and burnout and compassion satisfaction among a sample of Lebanese nurses working at bedside in acute care hospitals.

2. Investigate the relationship between compassion satisfaction, burnout and fatigue in the study sample.

3. Determine the demographic factors associated with fatigue, burnout and compassion satisfaction.

4. Provide baseline data to be used in future intervention studies aimed at reducing fatigue, burnout among Lebanese bedside nurses.

B. Significance of the Problem

Many English speaking countries indicate the presence of persistent and severe shortages of nursing professionals (Winwood , Winefield & Lushington 2006).

The (2006) World Health Report reveal that in Lebanon the nurses' percentage in relation to the number of population is 1.18 per 1000 whereas the Eastern Mediterranean Region (EMR) average is 2.20 per 1000 and the mean global density is 4.06 per 1000.In fact the figures in Lebanon associated with fatigue looked very upsetting where out in a cross –sectional survey by El-Jardali, Dimassi, Dumit, Jamal & Mouro (2009) of 1,793 working in 69 different hospitals 1 nurse over 5 leaves the country within the first to second year of graduation (El-Jardali, Dimassi, Dumit, Jamal & Mouro,2009).

Eventually, healthcare sector is facing worldwide penury of well educated and experienced registered nurses particularly that the need for health care is increasing with the growth of the globe inhabitants. As per Ammar (2003) this actual fact is attaining even more Lebanon which already has a lower density of nurses compared to the EMR

because the Lebanese nurses are seeking immigration to the Gulf countries to improve their income (El-Jardali, Dimassi, Dumit, Jamal & Mouro,2009).

Recent research by Owens (2007) indicates that sleep loss and fatigue among nurses has become more problematic, since healthcare facilities are currently faced with nursing shortage (Owens, 2007). Nurses are acting as primary providers for their families, so overtime, extensive work schedules, increased hours of work in one week, will affect significantly nurses' overall performance (Owens,2007).

It was found by Barker & Nussbaum (2011) that fatigue has associations with stress, safety, and performance decrements in diverse work settings (Barker & Nussbaum, 2011).

As per Owens (2007) a major concern for patient safety is fatigue that is coupled with extensive working hours which also tends to be a contributing factor to job disturbance and non-attendance among registered nurses. It was found that the average hospital nurses' job frustration was four times greater than the entire working population of the United States, and one out of five nurses in the hospital stated that within a year they aim to resign from their present works (Owens,2007).

The burnout condition is linked to work and exhaustion. Burnout, unlike fatigue, is supposed to happen only in work environments, but can also predict sickness absence (Leone, Huibers, Knottnerus & Kant, 2007). As per Medland et al. (2004), long-drawn-out unrelieved stress at work leads to burnout and if not dealt with promptly it adds to healthcare professionals departing from their jobs (Potter et.al, 2010).

CHAPTER II

LITERATURE REVIEW

Major correlations in recent research studies to patient satisfaction, patient safety, turnover and retention of nurses within healthcare organizations was reported by Garman, Corrigan ,& Morris (2002), and Halbesleben et al. (2008). These findings signify the need for further studies about the phenomena of compassion fatigue and burnout (Potter et al.2010).As per Potter et al.(2010), researchers demonstrated the major effects that compassion fatigue can have both on professionals caring for patients and the healthcare settings, by causing high turnover, decreased efficiency ,and increased sick days (Circenis & Milllere,2011).

Barker & Nussbaum (2011) reflect on high rates of medical errors and the injuries sustained by healthcare professionals as serious modern-day challenges for health care settings around the world (Barker & Nussbaum,2011).

The Canadian Institute of Health Information (CIHI) 2005 report explained the following: nurses who absent themselves frequently from their jobs identified the following factors responsible for their absence; too much tension at work, physically demanding jobs, lack of support and respect from supervisors and high workload (CIHI,2005,pxvi).

A systematic review by Davey, Cummings, Newburn-cook & Lo (2009), was initiated for research papers published between 1986 and 2006 which addressed the probable factors of absenteeism. Accordingly, the content of 16 peer reviewed articles from 10 on line data bases were examined which revealed that burnout and job stress

were among the factors that increased absenteeism of the individual nurses (Davey, Cumming, Newburn-Cook & Lo,2009).

A recent qualitative descriptive study by Baydoun, Dumit & Daouk-Oyry (2016) to explore perceptions of the nurse managers concerning the sickness and absenteeism of nurses yielded the following results. Three main domains that lead to the sickness and absenteeism of nurses were; individual, work related, and organizational. This study revealed significant antecedents for absenteeism of nurses that are important to be noted (Baydoun, Dumit and Daouk-Oyry, 2016).

Nowadays work expectations are set very high and many jobs and professions anticipate constant productivity of the workers around the clock 24 hour over 24 hour, seven days a week. Unfortunately this principle applies closely to healthcare workforce ignoring the natural physiologic pattern of sleep and alertness. Long exhausting shifts , diminished hours of sleep, minimal recovery time in between shifts usually practiced by healthcare proficient personnel affect their performance , the outcome of patient care, their physical condition and comfort ,and the excellence of their educational skills (Owens,2007).

More and above nurses are usually faced with difficult work requirements as long shifts, stressful work environment, overwhelming responsibilities that contribute to exhaust them physically and psychologically. Unluckily, these job facts influence the nurse health status mainly the fatigue level not only acutely but chronically as well.

In addition, as per Barker &Nussbaum (2011) work fatigue in different occupation places proved to be tightly correlated with decrease in labor effectiveness and efficiency. More precisely the impact of fatigue on the safety of healthcare employees and their practice should be further looked in (Barker &Nussbaum, 2011).

As a matter of fact, evidence based data by Horne & Ostberg (1976) showed that lack of sleep affects negatively neurological behavior and thought processes of people. As per studies , the mental performance of the individual drops off 25% if he misses one night of sleep and up to 40% if he misses two days of sleep (Owens,2007).

An experiment done by Van Dongen , Maislin , Mullington & Dinges (2003) where waking neurobehavioral tasks were evaluated. Results illustrated that 4 to 6 hours of sleep restriction for 14 days without interruption had an end result of considerable collective dose dependent discrepancy in cognitive act on all tasks (Owens, 2007). Findings of this study suggest that even minimal sleep deficiency will disturb the normal neurologic behaviors of adults (Owens, 2007).

The harmful impact of inadequate sleep and tiredness has been assessed frequently. Philibert (2005) demonstrated in a meta-analysis study about the impact of sleep deprivation on physicians. Participants of the study were nine hundred and fifty nine physicians and one thousand and twenty eight non physicians and five thousand two hundred and ninety five individual outcome indicators. Aim was to investigate the consequences of sleep deprivation on cognitive occupation, remembrance, and alertness in resident physicians and their clinical performance. Also between resident physicians and non physicians. Findings indicated that physicians' general performance lessened of about 1 standard deviation (SD), and their clinical attentiveness by 1.5 SD if they had sleep loss of < than thirty hours. Subjects showed a decrease in attention, recalling , and also in cognitive / clinical performance (Owens 2007).

Carayon & Gurses (2005) & Scott et al. (2006), state that most of studies that explored the relationship between workload, length of working hours and achievement within nursing profession targeted only intensive care units. Accordingly, it is crucial to

initiate a research that focus on different nursing care areas in order to calculate the intensity of fatigue in diverse health care settings (Barker & Nussbaum, 2011). Present representations or explanations of job-related fatigue presume that occupational fatigue is acute, and they do not encompass dissimilar definitions of acute and chronic fatigue either (Winwood , Winefield, Dawson & Lushington 2005 & Barker & Nussbaum,2011).

Aaronson (2003) defined the state of acute fatigue as a short term work or daily activities experience of people who are in good health. Whereas he identified the state of chronic fatigue as a long term state or an illness (Barker & Nussbaum, 2011).

Surprisingly the acute fatigue impacts more the nurses than the chronic fatigue. Effectively, studies show that when nurses work long hours without getting enough rest between these shifts they suffer from a higher level of fatigue; whereas chronic fatigue results in a lower level of fatigue (Barker &Nussbaum, 2011). On the other hand when nurses encounter repetitive acute fatigue due to extended shifts, they end up enduring chronic fatigue which is a common denominator among nurses working in diverse healthcare settings, thus quantifying fatigue levels in nursing population should be considered (Barker & Nussbaum, 2011).

Barker and Nussbaum (2011) used an on line data collection in United States of America (USA) between February 2008 and April 2009 to quantify all fatigue magnitude at different levels; mental/ physical/total ,while considering acute and chronic fatigue measurements in correlation with performance. Participants were registered nurses that were chosen using convenience sampling with the help of professional nursing organizations. This study put in evidence that the nurses' mental fatigue was more than their physical fatigue and the intensity of acute fatigue was

superior to the intensity of chronic fatigue by 15% as it was revealed by nurses. In addition in this research paper any level of chronic fatigue that was less than 50% was considered as "moderate" and it was similar to the levels of fatigue that was measured in another study done for nurses in Australia by Winwood et al. (2005) (2006b) . Furthermore his study proved that the prolonged work shifts in addition to the chronic fatigue that is moderate will induce negative repercussions on both nurse and patient safety (Barker & Nussbaum, 2011).

The expression compassion fatigue (CF) was first originated by Joinson (1992) when he was studying exhaustion in nursing professionals working in emergency units. According to her compassionate nurses, considerate human beings, may take in the shocking stress of people whom they assist (Circenis & Millere,2011). As per Stamm (2002), sleep disorder results because of precise signs of CF that may take in re-occurrence of the shocking experience, including disturbing ideas, keeping away from or anesthetizing memories of the event (Circenis & Millere,2011).

Burnout disorder is considered as a serious problem for 21st century. Construct of "Burnout" was first identified in 1970s by Maslach and Jackson. They created a way to measure the particular consequences of emotional tiredness, decreased sense of personal achievement , and depersonalization (Circenis & Millere,2011).Schaufeli & Enzmann (1998) state that the cause of burnout seems to be multifactorial. Most broadly established explanation of burnout was invented by Maslach. He explained it as a mental condition that extends in individuals who have a specialized connection with other human beings. Thus the employee loses interest and constructive opinions he/she had possessed for clients and ends up being indifferent and unenthusiastic (Circenis & Millere,2011).

Circenis & Millere (2011) wanted to discover the presence of compassion fatigue ,burnout disorder and the contributing factors in different work environments among nurses in Latvia. 129 nurses participated in the study from a number of hospitals in Latvia. Maslach's 22- item Burnout Inventory (MBI) was used to measure burnout. Professional Quality of Life (ProQOL) Scale developed through H. Stamm was utilized for the quantification of Compassion Satisfaction, Secondary Traumatic Stress, and Burnout. Some of the significant correlations that were identified while analyzing data ($p \leq 0.01$) among different outcomes are association among *MBI* subscale and *Pro-QOL R-V* Burnout subscale 0,616 (*P < 0.01*), *MBI* subscale and *Pro-QOL R-V* secondary Traumatic Stress subscale 0,579 *(p < 0.01)* and MBI minimized feeling of personal achievement subscale and *Pro-QOL R-V* Secondary Traumatic Stress subscale 0,576 *(p < 0.01)*. Issues that contribute to burnout such as; insufficient salary, emotional stress from dealing with patients and the proficient achievements of nursing personnel have also been recognized during this study (Circenis & Millere,2011).

A multivariate analysis was done by Estryn-Behar & Van der Heijden (2012), to study the negative consequences of extensive work rotations on employee's health status , job satisfaction, work/family life balance, and patient safety . Participants were 25,924 European nurses. Results revealed that nurses at the expense of their health prefer to be on12 hour shift or night shift to lessen the conflicts they face between the workplace and their home . Moreover, in an extensive work environment the concerns about worker and patient wellbeing still do exist (Estryn-Behar & Van der Heijden, 2012). A very wide analysis by Wagstaff & Sigstad (2011) revealed that risk of accidents are more when work periods extend 8 hours ,and after 12 hours the risk of accidents is twice (Estryn-Behar & Van der Heijden ,2012). Olds & Clarke (2010)

demonstrated that even if the nurses are willing to work overtime , it should be taken into consideration that each three hours worked past 40 hours/ week, confirmed a standard increase of 3 percent of reported errors in medication administration, and of 3 percent of injuries resulting from needle pricks (Estryn-Behar & Van der Heijden ,2012).

As proposed by Halbesleben et al. (2008) it is vital to comprehend burnout effects on health care professionals on quality of patient care, to be able to be aware of the consequences of burnout on health care employees (Potter et al.2010).Leiter Harvie & Frizell (1998) in their study found an opposite relationship between nurses suffering from exhaustion and patients' feedback about the quality of care. Another study by Potter et al. (2010) discovered parallel outcome within a research where 600 patients and more than 800 nurses participated. (Potter et.al, 2010).

Robinson et al, (2003) identifies occupational stress as the main cause of burnout, and explains further that emotional exhaustion, depersonalization , and a perception of lack of personal accomplishment are main characteristics of burnout (Sherring & Knight,2009). The perception of burnout is frequently misunderstood and has harmful associations for some people. It occurs in stressful working conditions for long time periods, and can guide to a decline in quality care by increased absence, decreased self-esteem and increased staff turnover (Sherring & Knight,2009).

Results of the study conducted by Sherring & Knight (2009) , in UK for 475 qualified mental health care nurses employed at the Trust suggest that participants who consider leaving their jobs had higher levels of emotional exhaustion and depersonalization (Sherring & Knight , 2009).

Surgenor et al (2009) found in his research that there is close relationship between burnout and causative factors at work such as long working hours and decreased satisfaction towards the job. Studies showed additionally that when employees work for long hours and they feel minimally satisfied with their job; they become more prone to depersonalization. Besides, when the healthcare workers stay longer in the same job they will risk more having the feeling of low achievement at the personal level (Circenis & Millere,2011).

Estryn-Behar & Van der Heijden (2012) found that extended work shifts, and low quality of teamwork are greatest risk factors for burnout. This results in diminishing the work capacities index and in escalating the fears of the nurses about committing medication errors. More and above the study demonstrated that the nurses who are not well supported by teamwork will think four times more about changing the working area and seven times more will consider leaving the nursing job completely (Estryn-Behar, Van der Heijden,2012).

A. Fatigue Measurement Tools used in Nursing

A broad explanation of fatigue failed to reach to a conclusion, even after a century of study. The absence of an agreed definition has limited the development of measurement tools (Winwood, Winefield, Dawson & Lushington, 2005). During the latter third of the 20th century, some researchers adopted the broad paradigm that self-reported fatigue effects may be measured, even if the underlying psycho/physiological processes remain to be fully described (Winwood, Winefield, Dawson & Lushington, 2005).

The study of the fatigue phenomenon within medically compromised patients has produced a great many instruments. Researchers experienced some difficulty in finding appropriate instruments given the paucity of validated work-related fatigue across the full spectrum of occupations .The three extant instruments that fall within this category were, the Swedish occupational Fatigue Inventory (SOFI), which is limited to measuring physical signs of acute post work fatigue and not appropriate for chronic fatigue assessment. The Fatigue Assessment Scale (FAS), is a measure of sub chronic/chronic fatigue traits arising from work, including both peripheral and central effects, but does not include any measure of recovery from fatigue or encompass the interaction of severe fatigue conditions with prolonged fatigue behaviors. The Need for Recovery From Work (NRFW) Scale is found to be a subscale to general Questionnaire on the Experience and Evaluation of Work (QEEW) scale, appears to address this issue, however, it's very high correlation of 0.84 along with the exhaustion subscale of MBI strongly suggests that it a measure of fatigue acquired rather than a scale of recuperation from such fatigue. Winwood, Winefield, Dawson & Lushington (2005) found the need of developing a simple instrument is evident to be able to measure and differentiate among enduring exhaustion/fatigue behaviors , acute fatigue states which occur at the end of the shift , and work associated fatigue recovery (Winwood , Winefield, Dawson & Lushington ,2005).

 "*Occupational Fatigue Exhaustion Recovery*" (OFER) a 20 -item scale which was established by Winwood, Winefield, Dawson & Lushington (2005), for acute fatigue, recovering from shift to shift, and chronic fatigue measurement.

To confirm the psychometric properties of the instrument, a large scale study among 770 registered nurses at an Australian metropolitan hospital was undertaken.

Exploratory analysis of the instrument indicated a solution of 3 factors which was verified by assenting factor analysis utilizing *Amos V5 software*. Initial analysis indicated a goodness of fit (GFI)= 0.872, where as a GFI value of 0.92 is regarded as a minimum indication of adequate fit of data in the proposed model (Byrne ,2001 &Winwood, Winefield, Dawson & Lushington,2005) .

Examination of the modification indices indicated that the model fit will be improved by removal of two items; one from OFER-CF and one from OFER-AF. In addition, there was a significant correlation in error variance between items;1 and 2, 1 and 5, 6 and 8, that may have represented similarities in response error to these items. After these adjustments were undertaken to the model the GFI rose to 0.94, along with other fit indicators that confirmed the acceptable fitting of data in the revised reproduction (Winwood, Winefield, Dawson & Lushington,2005).

 The three subscales' internal reliabilities measured by Cronbach's alpha values were satisfactory. The chronic fatigue *(OFER-CF)* subscale is a measure for chronic fatigue like a stable attribute with a high Pearson test -retest correlation of 0.84. The acute fatigue *(OFER-AF)* subscale is a measure of acute work fatigue with a Pearson test-retest correlation of 0.67, The inter shift recovery *(OFER-IR)* subscale calculates the extent to which an employee picks up from the energy burned up throughout the preceding work shift with a Pearson test-retest correlation of 0.64 (Winwood, Winefield, Dawson & Lushington,2005).

Winwood, Winefield, Lushington (2006), in a study between 510 nurses in Australia, further tested the psychometric properties of OFER. Modifications were made for grouping of items in each subscale by Confirmatory Factor Analysis. Each subscale held five items only. Cronbach's alpha having coefficients from one to three

subscales ranged from 0.84 to 0.89. There were significant correlations at 0.01 level among two states of fatigue acute and chronic *(r = 0.53),* chronic fatigue and recovery *(r = -0.53)* and acute fatigue and recovery *(r = -0.61)* (Winwood, Winefield, Lushington , 2006).

To conclude OFER is a modest scale, easy to administer, and the final version consists of 15 items. As established in the literature by Winwood, Winefield, Dawson & Lushington (2005) ; it has good psychometric characteristics of construct, face, convergent, discriminant soundness, dependability, internal steadiness , robust predictive power ,and does not contain any gender bias (Winwood, Winefield, Dawson & Lushington ,2005).

In a pilot study conducted by Sagherian (2012) for registered nurses in Lebanon , all three OFER subscales met acceptable standards of reliability with coefficients ranging from 0.70 to 0.83. The Chronic Fatigue *(CF)* and Acute Fatigue *(AF)* subscales had high mean values; 70.25 and 76.79 respectively. The mean value of the third subscale, Inter shift Recovery *(IR)* was 39.36. The 59 nurses in the sample of registered nurses reported high chronic and acute levels of fatigue with inadequate inter shift recovery (Sagherian,2012).

B. Burnout Measurement tool used in the study

The perceptions of burnout and compassion fatigue are closely related and sometimes defined vaguely. As per Poter et al. (2010) Burnout is more often defined as caused by environmental stressors ,whereas compassion fatigue is known to address the relative nature of the circumstance (Potter et al. , 2010).

Leone, Huibers, Knottnerus and Kant (2007), examined overlap, similarities and differences between prolonged fatigue and burnout. The baseline data they analyzed was obtained via a study done to evaluate fatigue among 12140 participants at work. The subgroup that had participants with simultaneous exposure to both conditions; burnout and fatigue; were liable to have worse results related to their wellbeing and occupation matters than the ones that were exposed to either one of the conditions; extended fatigue / burnout. Also during this study the discriminative capacities of both instruments *Checklist Individual Strength* (CIS) and *Maslach Burnout Inventory General Survey* (MBI-GS) showed to be reasonable (Leone, Huibers, Knottnerus and Kant, 2007).

Maslach and Jackson developed Maslach Burnout Inventory (MBI) in the beginning of 1980. Although it has been most commonly used burnout measure, some researchers have been troubled with its limited conceptualization and some of its psychometric limitations (Halbesleben & Demerouti, 2005).

To address some difficulties related to *MBI*, the Oldenburg Burnout Inventory *(OLBI)* was developed. Demerouti et al. (2002) identified two factors; disengagement and exhaustion to be evaluated while creating OLBI. Halbesleben & Demerouti (2005) studied the validation and the characteristics of OLBI while they used data collected from different sections of the United States for a total number of 2599 employees; a general section of functioning grown-ups and a sample of workers who are employed at the fire department. Preliminary findings recommended that OLBI may be a feasible alternative to MBI-GS. However there was one concern the clinical cut off scores that could not be resolved by the OLBI. Whereas, it was argued upon the importance of such

cut offs for dealing with and conclusion of precise occurrence of burnout in society

(Halbesleben & Demerouti, 2005).

The *Professional Quality of Life Scale* (ProQOL) was used to measure the

extent of burnout in nurses. Figley (2002), Najjar & Davis (2009), Hooper (2010) &

Stamm (2010), found that nurses are more at risk of building up undesirable symptoms

associated to *burnout*, *compassion fatigue*, and *Posttraumatic Stress Disorder* when

they are exposed to shocking stressors (Circenis, Milere & Deklava, 2013). Najjar &

Davis (2009), state about the common use of ProQOL scale for measuring the negative

and positive consequences of jobs that involve people who have been exposed to severe

stressful experiences (Circenis, Milere & Deklava, 2013).

CHAPTER III

METHODOLOGY

A descriptive and cross sectional research design is used for this research.

A. Study Population

Population of interest is Lebanese nurses working at the bedside in acute care hospitals. For this research study, the sample consisted of 368 registered nurses (RNs) employed as full time at Center C, who have been working for more than one year, and are below 50 years of age. All RNs working in management positions, outpatient clinics, employed less than one year, or are more than 50 years old, were excluded from participating because the objective of this study is to evaluate fatigue and burnout among a sample of Lebanese bedside nurses.

B. Sample

The sampling frame for this study was the 580 registered nurses employed at Center C. Since more than 50% of the registered nurses employed at the center responded to the survey, the convenience sample recruited is considered adequate.

C. Instrumentation

The questionnaire developed for this study include a demographic section to capture personal and professional information, the *Occupational Fatigue Exhaustion Recovery* scale *(OFER 15)* (Winwood , Winefield, Dawson & Lushington., 2006), and *Professional Quality of Life Scale V5 (Pro QOL R-V)* (Stamm,2010).

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All instruments were administered in English, since the study was done at Center C where English is the language for practice. All RNs recruited for the study ensured that they were proficient in English to fill out the questionnaire.

1. Demographic questionnaire

The demographic questionnaire developed for this study includes questions pertaining to personal data age, gender, marital status, educational level, enough rest, obliged work, second job, work center, number of children, number of dependents and hours of sleep (Appendix C).

2. Occupational Fatigue Exhaustion Recovery Scale (OFER 15)

Permission was granted from the primary author to utilize the OFER scale for the present study (Appendix C). The OFER which includes a fifteen item scale, assessed levels of recovery and fatigue via its 3 subscales which measures, acute fatigue *(OFER-AF),* chronic fatigue *(OFER-CF)*, and recovery among shifts *(OFER-IR)*. Every item hosts a 6 point Likert reply scale, having ratings from strictly disagree (0) to strictly agree (6). OFER-CF, OFER-AF, and OFER-IR subscale scores were calculated in accordance with the OFER Manual (Winwood, Bakker & Winefield, 2007).

The OFER scale has convergent validity and internal reliability of each of the subscales ranging from 0.84 to 0.86. Extensive tests of the scale were performed on nurses, and revealed that the scale is reliable and non-biased. Assessing recovery among shifts on this scale is distinctive between measured and reported fatigue (Barker & Nussbaum, 2011). Moreover, construct validity of the instrument was supported by the instrument's ability to distinguish among chronic and acute fatigue subscales (Winwood Bakker & Winefield, 2007).

3. *Professional Quality of Life Scale; V5 (ProQOL)*

The scale established by B. Hudnall Stamm is composed of 3 subscales: Secondary Traumatic Stress, Burnout and Compassion Satisfaction. The uniqueness of each subscale prevents us from putting their results together to obtain one definitive score. The scale is composed of a total of 30 items, divided by 10 in each subscale, with a 5-point Likert scale numeric rating, ranging from 0- 5 (never - very often) (Stamm,2010).

According to the scoring manual there are three steps to be followed.

Step 1: is for reversing items 1,4,15,17,and 29 into 1r,4r,15r,17r,and 29r

(1=5)(2=4)(3=3)(4=2)(5=1). (Stamm, 2010)

Step 2: Is summing up items in each subscale as follows;

CS=SUM (pq3, pq6, pq12, pq16, pq18, pq20, pq22, pq24, pq27, pq30).

BO= SUM (pq1r, pq4r, pq8, pq10, pq15r, pq17r, pq19, pq21, pq26, pq29r).

STS= SUM (pq2, pq5, pq7, pq9, pq11, pq13, pq14, pq23, pq25, pq28) (Stamm, 2010)

Step 3: Conversion of the Z scores to t-scores with a raw score mean of 50 and the raw score standard deviation of 10 (Stamm, 2010)

The construct validity is well established with more than 200 published papers. The three scales measure separate constructs. Greater scores on the Compassion Fatigue subscale are an indication of higher compassion fatigue risk of the respondent. Greater scores on the Compassion Satisfaction subscale are an indication that the respondent is more satisfied with his/ her ability in providing care. Greater scores on the Burnout subscale are an indication of the level of risk the individual is at for having symptoms of burnout (Stamm, 2010).

The ProQOL scale is the most widely utilized instrument of assessing the positive and negative consequences of working with individuals who have experienced events that were extremely stressful (Stamm,2010).

D. Procedure

After securing approval from Institutional Review Board (IRB), and hospital administration a total of 450 packages were distributed to all inpatient units and deposited in survey boxes placed at the nurses' station. An information sheet was posted on each box to serve as an announcement of the study for better response rates. Each package contained A Cover Letter (Appendix A), Informed Consent (Appendix B), Questionnaire (Appendix C), and a return envelope. The distribution took place during the inter shift periods where the researcher provided nurses with additional information regarding the study. The completed questionnaires were placed in sealed envelopes and deposited in the survey boxes that were placed at the nursing stations with the researcher's name on the envelope. The survey boxes were emptied regularly by the researcher during collection rounds on daily basis for a period of two weeks; after which the survey boxes were removed from all inpatient units. A total of 368 questionnaires were collected by the researcher. In accordance with prior IRB approval all returned questionnaires were included in the data analysis.

E. Privacy

Data collected was anonymous. The information sheet and the consent form attached to each questionnaire included instructions to refrain from writing their names or any information that will identify them. All completed questionnaires were returned

in sealed envelopes to Mrs.Tchaparian. Data was kept in a locked drawer in a locked

room and was analyzed on a password protected computer kept in a secure office in

Hariri School of Nursing.

E. Ethical Consideration

The study was approved by the American University of Beirut Social and

Behavioral Institutional Review Board. Approval of Center C's Chief Medical Officer

and Director of Nursing was secured. In addition the researcher is Collaborative

Institutional Training Initiative (CITI) certified. The IRB consent document is presented

as Appendix B. The consent document explains the provisions made for privacy,

confidentiality, storage of research data, and voluntary informed consent.

CHAPTER IV

RESULTS

Of the 450 questionnaires distributed on inpatient units, 368 questionnaires were returned to drop boxes; the response rate was 82 %. Since none of the questionnaires had substantial missing data, all were retained for analysis. The effective sample size for the study was 368 registered nurses employed at Center C.

The demographic characteristics of nurses participating in the survey are summarized in Table 1. The reference to 'obliged to work' in Table 1 identifies the percentage of nurses who reported they were obliged to work for financial reasons. Similarly, the reference to 'second job' identifies the percentage of nurses who work a second job.

Of the 368 participants, 231(63.1%) were females, and 134(36.6%) were males. The ages of the sample ranged from 24 to 50 years. 253(69.1%) of the participants are between 25-35years old, 57 are less or equal 24 years of age,42 (11.5%) are between 35-45 years old, and 14 are between 45-50 (3.8%) years old. Results show that the majority of the participants 310 out of 368 are less than 35 years of age. Most participants 259 (70.7%) had a Bachelor of Science in nursing, and 83(22.7%) had Master's in Nursing. More than half of the participants 210 (57.9%) reported that they do not have enough rest before starting their next shift, and 128 (35.1%) reported that they are obliged to work extra hours. All participants are full time employees. Additionally 45(12.3%) of participants have a second job. The sample characteristics is summarized in Table 1.

Table 4.1. RN Sample Characteristics (N=368)

Characteristic	N	%
Age		
Less Than or equal to 24	57	15.6%
25-35	**253**	**69.1%**
35-45	42	11.5%
45-50	14	3.8%
Gender		
Female	**231**	**63.1%**
Male	134	36.6%
Marital Status		
Single	**206**	**56.3%**
Married	146	39.9%
Divorced	3	0.8%
Other	11	3.0%
Educational Level		
BS in Nursing	**259**	**70.8%**
Master's in Nursing	83	22.7%
Others	24	6.6%
Enough Rest		
Yes	153	42.1%
No	**210**	**57.9%**
Obliged Work		
Yes	128	35.1%
NO	**237**	**64.9%**
Second Job		
Yes	45	12.3%
No	**321**	**87.7%**
Work Center		
AUBMC	368	100%
No of children :Mean , Range	0.54	(0,4)
No of Dependants: Mean , Range	0.86	(0, 6)
Sleep Hours: Mean ,Range	6.80	(3,12)

Note. Bolded numbers represent the highest frequencies and percentages in the sample

All registered nurses that participated in this study are employed at Center C as bedside nurses. Sample averages, standard deviations and ranges for the Professional Quality of Life Scale subscales *(PROQOL version V)*, and the Occupational Fatigue Exhaustion Recovery Scale subscales *(OFER15)*, are presented in Table 2.

Table 4.2. Descriptive statistics for the Professional Quality of Life Scale the Occupational Fatigue Exhaustion Recovery Scale subscales (N= 368)

Item	Mean	Standard Deviation	Minimum	Maximum
ProQOL				
Compassion satisfaction	35.06	6.15	16	49
Burnout	27.16	5.00	10	41
Secondary Traumatic Stress	27.86	6.04	13	46
OFER				
Acute Fatigue	69.91	17.93	0	100
Chronic Fatigue	71.63	19.32	3.33	100
Inter shift Recovery	38.54	17.97	0	100

The average for Compassion Satisfaction subscale was 35.06 (SD=6.15), for Burnout 27.16 (SD=5), for Secondary Traumatic Stress subscale 27.86 (SD= 6.04). Compared to Circenis & Millere (2011), where the average for Compassion Satisfaction subscale was 37.42 (SD=6.67), for Burnout 23.50 (SD= 6.38), for Secondary Traumatic Stress subscale 19.59 (SD= 6.58).

The average for Acute fatigue was 69.91 (SD=17.93), for Chronic fatigue was 71.63 (SD=19.32), and for Inter shift recovery mean was 38.54 (SD=17.97). Compared to the results of the study by Barker & Nussbaum (2011), where the mean average for Acute Fatigue subscale was 65.55 (22.06), for Chronic Fatigue subscale was 50.07 (27.74), and for Inter shift Recovery subscale 50.1 (23.61).

Reliability coefficients (Cronbach's alphas) were calculated for ProQOL and OFER subscales and the results are shown in Table 3. For the ProQOL tool, the highest Cronbach's alpha coefficient (0.85) was for the 'compassion satisfaction' subscale, while for 'burnout' subscale it was 0.65 and for the 'secondary traumatic stress' subscale it was 0.78. No total required for the full scale. For the OFER subscales, the highest Cronbach's alpha coefficient (0.85) was for 'chronic fatigue', while for 'acute fatigue' it was 0.74 and for 'inter-shift recovery' subscale it was 0.71.As stated by Polit and Beck (2004) reliability coefficients exceeding 0.70 are considered acceptable to compare group findings (Manderscheid,2008). So all Cronbach's alphas coefficients met the accepted minimum value of 0.7 except for the burnout subscale of the ProQOL tool.

Table 4.3. Cronbach's alpha parameters of Professional Quality of Life Scale subscales and Occupational Fatigue Exhaustion Recovery Scale subscales (N= 368)

Item	Number of items	N	Cronbach's Alpha
ProQOL			
Compassion Satisfaction	10	368	0.85
Burnout	10	368	0.65
Secondary Traumatic Stress	10	368	0.78
OFER			
Acute Fatigue	5	368	0.74
Chronic Fatigue	5	368	0.85
Inter shift Recovery	5	368	0.70

Quartiles of the OFER subscales were computed and compared to the published norms. It is worth noting that the study sample values were higher than the norms for

the chronic and acute fatigue subscales and lower than the norms for the inter shift recovery subscale (Table 4)

Table 4.4. Quartiles of the OFER subscales distributions

Subscale	1st Quartile		Median		3rd Quartile	
	Sample	Norm	Sample	Norm	Sample	Norm
Chronic fatigue	60.00	25	76.67	50	86.67	75
Acute fatigue	56.67	25	70.00	50	83.33	75
Intershift recovery	26.67	25	40.00	50	50.00	75

Correlation analysis using Pearson correlation coefficient was carried out to assess relationships between the ProQOL and OFER subscales. For OFER subscales, all correlations were significant with the strongest correlation between Chronic fatigue and Inter shift recovery *(r= -.60, p < 0.001)*. As for ProQOL subscales significant correlations were found between Compassion satisfaction and Burnout *(r= -.62, p < 0.001)* and between secondary traumatic stress and burnout *(r = 0.49, p < 0.001),* while no correlation was found between secondary traumatic stress and compassion satisfaction.

Comparing subscales of ProQOL and OFER, all correlations were significant. The highest significant correlations was found between Burnout and Chronic fatigue *(r = .47, p = 0.00)* followed by Burnout and Inter shift recovery (r = -.46, p < 0.001) and the lowest between secondary traumatic stress and acute fatigue *(r = 0.12, p =0.01).*

Correlation coefficients are summarized in Table 5.

Table 4.5. The relationship between Professional Quality of Life Scale subscales and Occupational Fatigue Exhaustion Recovery Scale subscales (N= 368)

Correlation between subscales (N = 368)

	Chronic Fatigue	Acute Fatigue	Inter Shift Recovery	Compassion Satisfaction	Burnout	Secondary Traumatic Stress
Chronic fatigue	1					
Acute fatigue	.55**	1				
Inter shift recovery	-.60**	-.59**	1			
Compassion Satisfaction	-.30**	-.25**	.33**	1		
Burnout	.47**	.30**	-.46**	-.62**	1	
Secondary Traumatic Stress	.28**	.12*	-.16**	-0.06	.49**	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Unadjusted and adjusted linear regression analyses were conducted to determine the characteristics associated with acute fatigue (Table 6), chronic fatigue (Table 7) and inter shift recovery (Table 8) and the ProQol subscales (results not shown) independently. In the adjusted analyses, females and those who were obliged to work additional tasks had higher levels of acute and chronic fatigue and lower levels of inter shift recovery. While those who reported having enough rest had lower levels of acute and chronic fatigue and higher levels of inter shift recovery. Demographic variables explained very little information in the ProQOL scale (adjusted R^2 ranging from 0.01 – 0.09 for the three subscales) and therefore the results are not reported.

Demographic variables explained very little in the ProQOL scale (adjusted R^2 ranging from 0.01-0.09 for the three subscales) and therefore the results are not reported.

Table 4.6. – Univariate and multivariable linear regression for Acute Fatigue

Variable	Unadjusted			Adjusted		
	B	SE	95% CI	B	SE	95% CI
Age						
More than 35	Reference					
Less than 24	5	3.32	(-1.53, 11.54)	3.48	3.2	(-2.81, 9.77)
25-35	6.82	2.61	(1.62, 11.96)	4.68	2.52	(-0.27, 9.65)
Gender						
Male verses Female	5.33	1.91	(1.57,9.08)	4.89	1.84	(1.27, 8.51)
Enough Rest	-10.89	1.80	(-14.44,-7.33)	-8.63	1.83	(-12.24, -5.01)
Obliged Work	7.76	1.91	(3.99, 11.52)	5.97	1.87	(2.28 , 9.65)
Adjusted R^2					0.13	

Table 4.7. Univariate and multivariable linear regression for Chronic Fatigue

Variable	Unadjusted			Adjusted		
	B	SE	95%CI	B	SE	95%CI
Age						
More than 35	Reference					
Less than 24	-0.02	3.55	(-7.01,6.97)	-0.04	3.37	(-6.69,6.59)
25-35	5.82	2.79	(0.33 - 11.31)	4.12	2.66	(-1.10,9.35)
Gender						
Male vs Female	3.53	2.06	(-0.52,7.59)	3.87	1.96	(0.01,7.73)
Enough Rest	-13.45	1.88	(-17.16,-9.74)	-11.27	1.93	(-15.08,-7.46)
Obliged Work	8.30	2.04	(4.28,12.31)	5.38	1.97	(1.49,9.26)
Second Job	6.03	3.01	(0.09,11.96)	5.17	2.88	(-0.48,10.83)
Adjusted R^2						0.15

Table 4.8. Univariate and multivariable linear regression for Inter shift Recovery

Variable	Unadjusted			Adjusted		
	B	SE	95%CI	B	SE	95%CI
Age						
More than 35	Reference					
Less than 24	-4.85	3.35	(-11.46,1.74)	-2.69	2.99	(- 8.59, 3.20)
25-35	-6.41	2.63	(-11.59,-1.22)	-3.06	2.36	(- 7.71, 1.59)
Gender						
Female vs. Males	-4.73	1.92	(-8.52 , -0.94)	-3.55	1.72	(-6.94,-0.16)
Enough Rest	17.61	1.67	(14.31 , 20.91)	15.95	1.72	(12.56, 19.34)
Obliged Work	-7.79	1.93	(-11.59, -4.00)	-4.42	1.75	(-7.88,-0.96)
Adjusted R^2					0.25	

CHAPTER V

DISCUSSION

The goals of this study were;

1) Quantify levels of fatigue, burnout and compassion satisfaction among nurses in the study sample,2) investigate the relationship between fatigue, burnout and compassion satisfaction in the study sample 3) determine the demographic factors associated with fatigue, burnout and compassion satisfaction,4)Provide baseline data to be used in future intervention studies aimed at reducing fatigue, burnout among Lebanese bedside nurses.

A. Feasibility of the study

1. Recruitment

Recruitment of participants of the study was successful and we had a high response rate. Doing the study at Center C made it easy to get a high number of participants. Researcher rounded on the units during the inter shift report times and informed the staff about the aim of the survey and answered questions related to the study. Boxes with questionnaires were placed on the all nursing units with a cover letter about the study and completed questionnaires were returned to these boxes with no names to maintain the confidentiality and privacy of the participants. As per the language both tools used were in English language and all registered nurses employed at Center C are fluent in English language. A contributing factor for the high response rate

might have been the frequent rounds by the researcher for reminding nurses and for collecting the completed questionnaires. All 368 questionnaires were used for the data since they met the inclusion criteria.

2. Instrumentation

Both instruments OFER 15 and ProQOL V 5 were examined by the primary investigator and the researcher. The instruments were administered in their original form in English since English is the language practiced at Center C. However if this questionnaire has to be used in a national study it will be easier for participants if it translated to the Arabic Language since Arabic is the national language in Lebanon.

Prior to questionnaire's administration it was tested among a group of experts in the Nursing Administration at Center C for the wording, clarity and time of filling the questionnaire. Both instruments had clear instructions and were easy to be filled.

Bedside nurses doing rotating shifts were recruited for our study since problems of fatigue and recovery linked with shift work do exist. There are theoretical reasons that the progression from acute to chronic fatigue is more common with persistent inability to recuperate during the nonworking periods in between shifts (Winwood, Winefield, Lushington ,2006).

Both instruments have good psychometric properties; OFER scale offers outstanding psychometric characteristics of construct, face, convergent, and discriminant validity; internal consistency; reliability; and strong predictive power (Winwood, Winefield, Dawson, & Lushington, 2005). The participants confirmed that the instruments were easy to understand and did not need more than 15 minutes to be completed.

3. Explanatory Analysis

As our main objective in the present study is to quantify the levels of fatigue and burnout in a sample of Lebanese nurses working at bedside in acute care hospitals following observations were noted.

B. Objectives

- First Objective Quantify levels of fatigue, burnout and compassion satisfaction among nurses in the study sample: As illustrated in Chapter IV, Tables 2 and 3, for the OFER subscale, the average mean for Acute fatigue was 69.91 (SD=17.93), for Chronic fatigue 71.63 (SD=19.32), and for Inter shift recovery 38.54 (SD=17.97). The three OFER subscales had good Cronbach's Alpha values ranging from 0.69 to 0.84; inter shift recovery (0.69), acute fatigue subscale (0.73), and chronic fatigue subscale (0.84). However comparing present study to a study done by Barker & Nussbaum (2011), our sample scored: higher on Acute fatigue (69.91vs.65.55) and Chronic fatigue (71.63 vs. 50.07), and lower on inter shift (38.54 vs. 50.1). As for Cronbach's Alpha values range was 0.87 to 0.91; inter shift recovery subscale value (0.87), chronic fatigue subscale value (0.91). In this study nurses experienced considerably greater levels of acute fatigue than chronic fatigue *(P< 0.0001)* for the OFER scale. Results of this study point out that participants who were able to sleep 6-9 hours/ night had lower acute and chronic fatigue scores than participants who had 5-6 hours of sleep. Participants working under 20 hours/week had lower chronic fatigue scores than those working 41-80 hours/ week. Also it was found that acute fatigue scores were lower in participants who worked regular day, evening or night shifts compared to irregular shift schedules rotating days/evenings/nights (Barker & Nussbaum, 2011).

Further illustration in Table 4 where quartiles of the OFER subscales were computed and compared to the published norms. It is worth noting that the study sample values were higher than the norms for the chronic and acute fatigue subscales and lower than the norms for the inter shift recovery subscale.

As for quantifying levels of burnout and compassion satisfaction in our study sample averages for ProQOL are illustrated in Table 2 (Chapter IV). The average mean for Compassion Satisfaction subscale was 35.06 (SD= 6.15), for Burnout subscale was 27.16 (SD=5), and for Secondary Traumatic Stress subscale was 27.86 (SD= 6.04). Cronbach's Alpha values for Compassion Satisfaction subscale was 0.85, for Burnout subscale was 0.65, and for Secondary Traumatic Stress subscale was 0.77. Comparing our findings to Circenis & Millere (2011), our sample scored lower on Compassion Satisfaction subscale (35.06 vs. 37.42) ,and higher on Burnout subscale (27.16 vs. 23.50) and for Secondary Traumatic Stress (27.86 vs. 19.59).

Further comparisons for ProQOL subscales : Compassion Satisfaction subscale mean value of current study which is 35.06 (6.15), revealed that our sample had lower scores of compassion satisfaction than studies of Circenis et. al (2013) { 37.41 (7.94), Yoder (2010) {40.3 (4.9)} , Alexander (2006) {39.1 (5.8)}, and Stamm (2005) { 37.0 (7.0)}. As per the Burnout subscale mean value 27.16 (5,0) of the current study is higher than all the above mentioned studies and Secondary Traumatic Stress subscale mean value 27.86 (6.04) was significantly higher than in the four previously mentioned studies (Circenis, Millere & Deklava., 2013). Our findings are consistent with all the previous findings as illustrated by Circenis, Millere & Deklava (2013). It is evident that burnout and secondary traumatic stress is increasing in the nursing population while compassion satisfaction is decreasing.

- Second Objective: Investigate the relationship between fatigue, burnout and compassion satisfaction in the study sample.

- Correlation between OFER subscales: All correlation between acute fatigue, chronic fatigue and inter shift recovery subscales were significant as illustrated in Table 5 (Chapter IV). All correlations were close in magnitude with the highest between inter shift recovery and chronic fatigue. High levels of acute fatigue were associated with high levels of chronic fatigue and low levels of inter shift recovery.

- Correlation between ProQOl subscales: There were no correlation between secondary traumatic stress and compassion satisfaction subscales as illustrated in Table 5 (Chapter VI). The highest correlation was between burnout and compassion satisfaction. High levels of burnout were associated with high levels of secondary traumatic stress and low levels of compassion satisfaction.

- Correlation between OFER and ProQOl subscales: As illustrated in Table 5 (Chapter VI), all correlations between OFER and ProQOL subscales were significant .The highest correlation was between burnout and chronic fatigue, and burnout and inter shift recovery. The lowest correlation was between acute fatigue and secondary traumatic stress.

Our findings reveal higher values of chronic fatigue than acute fatigue and are supported with the outcome of Winwood, Winefield, Dawson & Lushington (2005) study findings about the role of acute fatigue and inter shift recovery to chronic fatigue. This study validated a positive relationship between acute and chronic fatigue *(r = 0.61, P < 0.01)* and a negative one between inter shift recovery and chronic fatigue *(r = -*

0.64,P< 0.01) (Fang et al.2008). Fang, Kunaviktikul, Olson,Chontawan &

Kaewthummanukul (2008) reported that acute fatigue was significantly associated with

chronic fatigue *(r = 0.71)* , and inter shift recovery proved to be the most vital variable

in the explanation of acute fatigue *(b = -0.42).* Inter shift recovery is found to be a

major determinant of acute and chronic fatigue. Thus, work schedule planning must

offer enough time for nurses to recover in between shifts. It is essential that nursing

administrators and staff nurses plan for united future studies intended to discover the

best approaches for assisting inter shift recovery (Fang, Kunaviktikul, Olson,Chontawan

& Kaewthummanukul,2008).

    An explanatory analysis between the OFER subscales in our study had similar

findings to Winwood, Winefield, Dawson & Lushington (2005). Present study revealed

the most significant negative correlation between chronic fatigue and inter shift

recovery *(r= -.60)*, a positive relationship between acute and chronic fatigue *(r= .55)*,

and a negative correlation between acute fatigue and inter shift recovery *(r= -.59)*.

Which is supported by Winwood, Winefield, Dawson & Lushington (2005) ,and Barker

& Nussbaum (2011) that when workers are exposed to high levels of acute fatigue with

inadequate recovery between work shifts they are more prone to having high levels of

chronic fatigue (Barker & Nussbaum , 2011).Thus the presence of consistent low

recovery between shifts initiates the progression of chronic fatigue symptoms

(Winwood, Winefield, Dawson, & Lushington, 2005 & Winwood, Winefield &

Lushington, 2006).

    Having high value of chronic fatigue indicates the need to address the situation

promptly. As the nursing shortage becomes increasingly apparent, nurses will be asked

to work more shifts and longer hours. This will decrease the opportunity for inter shift recovery and increase the prevalence of chronic fatigue.

The pressure of shift schedules on nurses and other health care workers well being, performance and fatigue levels has been well recognized (Barker & Nussbaum, 2011).The nature of nursing work cannot avoid evening and night shifts to cover 24 hours a day and 7 days a week. However allowing worker's choice for the favored shift, shift length and hours per week could lessen negative consequences in this specific people (Barker & Nussbaum , 2011).

As for investigating the relationship between ProQOL Scale subscales and Occupational Fatigue Exhaustion Recovery Scale subscales. The correlation analysis using (Pearson correlation coefficient) was made to find out relationship between ProQOL and OFER subscales. For OFER subscales, the most significant correlation was found between Chronic fatigue and Inter shift recovery (-.60). As for ProQOL subscales the most significant correlation was found between Compassion satisfaction and Burnout (-.62).

- Third Objective:Determine the demographic factors associated with fatigue, burnout and compassion satisfaction: Post determining the demographic factors associated with acute fatigue , we noted the following; females and those who were obliged to work extra hours in our study sample had higher levels of acute fatigue, while those who reported having enough rest had lower levels of acute fatigue. The independent variables explained only 13% of the variance in acute fatigue scores (unexplained variance: 87%). Whereas post determining the demographic factors associated with chronic fatigue results were as follows;females had higher levels of chronic fatigue,

those who were obliged to work additional tasks had higher levels of chronic fatigue ,

and those who reported having enough rest had lower levels of chronic fatigue. The

independent variables explained only 15% of the variance in chronic fatigue scores

(unexplained variance: 85%). Furthermore, determining the demographic factors

associated with inter shift recovery demonstrated that females and those who were

obliged to work additional tasks had lower levels of inter shift recovery, while those

who reported having enough rest had higher levels of inter shift recovery. The

independent variables explained 25% of the variance in inter shift recovery scores.

As for the demographic factors associated with burnout, compassion

satisfaction, and secondary traumatic stress, demographic variables were poor predictors

of all three ProQOL subscale scores. Adjusted R^2 ranged from 0.01 – 0.09 for the three

subscales, therefore the results are not reported.

- Fourth Objective: Provide baseline data to be used in future intervention studies aimed

at reducing fatigue, burnout among Lebanese bedside nurses: Our findings of the

demographic section indicate that 310 (84.7%) respondents of our participants were less

than 35 years of age. This shows that majority of our bedside nursing population are

young. According to a multivariate analysis by Winwood, Winefield & Lushington

(2006) done to find the differences between fatigue and recovery by age had the

following results; The *OFER CF* scores of the > 55years of age were severely lower

than the other groups except the group of 35-44 years of age *{F (4,832) = 3.79, P =*

0.005}. Also *OFER AF* scores of the > 55years of age were notably inferior than the

other groups except the group of 35-44 years of age *{F(4,832)= 3.75, P = 0.005}*.Lastly

OFER IR scores were considerably elevated than other groups *{F (4,832) = 13.14, P =*

*< 0.001}.*The findings suggested that increased age was associated with increased inter shift recovery and decreased chronic fatigue (Winwood, Winefield & Lushington ,2006).

As noted in the results of Table 1 (Chapter IV) that 231 (63.1%) of our respondents were females even though the recruitment of men during the past decade has increased. As it is well known partnered women with children have multiple responsibilities at home. As a result of combined workload at home and at the workplace, married females have a lesser chance of recovering from acute job-linked fatigue. So these individuals are more prone to developing maladaptive chronic fatigue especially when working different shifts. There are supported indications of a correlation between health problems and full time employment of married mothers (Winwood, Winefield & Lushington, 2006). This evidence is supported by the present study. As demonstrated in Chapter IV, unadjusted and adjusted linear regression analysis was conducted to determine the demographic characteristics associated with acute fatigue (Table 6), chronic fatigue (Table 7) and inter shift recovery (Table 8) and the ProQol subscales independently. The adjusted analyses, females and those who were obliged to work additional tasks had higher levels of acute and chronic fatigue and lower levels of inter shift recovery.

Another factor determined in the sample, 210 (57.9%) of the respondents claimed that they do not have enough rest to recover before their next shift. As reported by Winwood, Winefield & Lushington (2006) persistent failure to recover between shifts enhances the shift from acute fatigue conditions to chronic fatigue conditions. This can explain the high levels of chronic fatigue and burnout in our sample.

Further research is needed to examine the relationship between levels of acute fatigue, chronic fatigue and intershift recovery and patterns of sickness absence among RNs in Lebanon. Future studies will require data to be collected about an expanded range of variables that might predict levels of fatigue in the workplace. The JOINT model developed by Daouk-Öyry, Anouze, Otaki, Dumit & Osman (2014) offers a starting point for considering which variables to include (Daouk-Öyry, Anouze, Otaki, Dumit & Osman ,2014).It will be important, too, to take account on how nurse manager's perceptions of sickness and absenteeism influence and are influenced by levels of fatigue among RNs (Baydoun, Dumit & Daouk-Őyry 2016).

C. Limitations

Registered nurses that were above 50 years old were excluded from the study. As per our results 310 respondents out of 368 were below the age of 35 years. This can be considered as a limitation since we could not quantify fatigue and burnout levels for the group of nurses who were more than 55 years of age with the other 4 age groups that we have. Another limitation of the study is having the sample only from Center C registered nurses. It will be interesting to quantify levels of fatigue and burnout among registered bedside nurses in different health care centers in Lebanon.

CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

A. Conclusion

Nurses at Center C reported high levels of chronic fatigue than acute fatigue. They also reported to have low levels of inter shift recovery. Compared to the results of the study by Barker & Nussbaum (2011), our sample scored higher values of chronic and acute fatigue, and lower values on inter shift recovery. We found significant correlation between OFER subscales, our findings are in line with the findings of Winwood, Winefield & Lushington (2006). Compared to Winwood , Winefield & Lushington (2006), we had slightly higher pearson r values for chronic and acute fatigue & lower values for inter shift recovery. As for the ProQol scale our sample had lower scores on compassion satisfaction ,higher scores on burnout and secondary traumatic stress compared to the previous studies done by Circenis, Millere & Deklava (2013), Yoder (2010), Alexander (2006) and Stamm (2005). For ProQOl scale the highest correlation was between burnout and compassion satisfaction in our sample whereas most significant correlation was between burnout and secondary traumatic stress in the study done by Circenis, Millere & Deklava (2013).

The moderate levels of chronic fatigue and burnout demonstrated in this study call for further investigation to determine the contributing factors to chronic fatigue and burnout. In a study by Winwood, Bakker & Winefield (2007) results discovered that off duty behaviors have an important role in bringing about maladaptive results from work tension. It was also noted that energetic and pleasing nonworking time behaviors were found to be more important in getting the most recovery from work tension than it was

commonly accepted. Which could be due to the downregulation of stress induced brain stimulation and motivation of the delight reward brain neurophysiology system (Winwood, Bakker & Winefield 2007).

It is obvious that the nursing profession in Lebanon is threatened with the nursing shortage for the coming years. Even though Lebanon is suffering from nursing shortage still Lebanese nurses migrate to gulf areas for salary increments. Nurse executives and Nurse educators have very essential roles in recovering the situation. If innovative strategies are set in place by nurse administrators to increase satisfaction among nurses, and provide them with a good quality of life I believe health care organizations in Lebanon will succeed in retaining their nurses.

As reported by Barker & Nussbaum (2011), variables like different shift schedules, sleep hours, years of experience had important effects on perceived fatigue levels in registered nurses. Further studies are needed to consider demographic and work related variables and resulting fatigue levels. These variables can be manipulated in a way to reduce chronic fatigue levels in nurses thus enhancing both nurse and patient safety.

Circenis & Millere (2011), studied the effect of contributing factors to compassion fatigue and burnout syndrome among 129 nurses from different Latvian hospitals. In this study they identified that poor salary, psychological burden and underestimated professional achievements of nurses contribute significantly to burnout syndrome (Circenis & Millere,2011).

Sherring & Knight (2009) concluded that nurses who feel valued and supported showed to have lower levels of burnout. In order to reduce burnout in nurses they

recommend to explore ways to make nurses supported & valued (Sherring & Knight, 2009).

As the results of our study are consistent with previous studies about evaluating fatigue and burnout among the nursing population in different settings and different times we assume further research should be done to quantify levels of fatigue and burnout in Lebanese bedside nurses.

B. Recommendations

Results of this study are beneficial for the Nursing Administration at Center C to take into consideration and set strategies to reduce fatigue and burnout among Center C nurses. Occupational fatigue and burnout affect both nurse and patient safety. At healthcare settings, nurse administrators and particularly nurse managers should be considerate while preparing nursing schedules in terms of rotations , number of days worked , additional hours worked during one week, and recovery time between shifts.

Findings of the current study may lead to beneficial outcomes for staff, patients and the healthcare system. Recognizing the fact that we have a young population of bedside nurses, and realizing that younger nurses experience particular difficulties that require great support during their early years of nursing career, nurse executives have an important role to improve retention of the nursing staff at Center C. Although this strategy may be difficult to implement but may yield long term benefits which far outweighs the problems and aids in nurse retention (Winwood , Winefield & Lushington, 2006).

Recommendations from research reports state that nurses pass through different stages while practicing their professions or having changes in their personal family

lives. They need to manage their time as suited to their own family needs. The option of flexible scheduling is essential to be able to meet these needs by maintaining their quality of life at the same time (Kilpatrick & Lavoie-Tremblay, 2006). Also research suggests that worker's ability to select the favored work shift is the most important factor to be able to adjust to shiftwork ,since prolonged shiftwork has important impacts on the worker's health and sleep patterns(Fitzpatrick, While & Robert's ,1999, & Kilpatrick & Lavoie-Tremblay,2006).As irregular shift schedule is considered by many researchers as one of the main contributing factors to acute and chronic fatigue, innovative measures should be considered to create a scheduling system that provides enough rest in between shifts.

The burden of shiftwork can be eased by health care manages within organizations in a number of ways. While determining the best schedule, flexibility and control to fit personal responsibilities and characteristics, number of consecutive shifts should be taken into consideration. Employee participation is crucial in discussions linked to changes in shift work. There should be institutional and individual strategies in place to support the worker cope efficiently with shiftwork (Kilpatrick & Lavoie-Tremblay, 2006).

Nurse executives can be initiative by developing nurse wellness activities within their healthcare organizations outside working hours about healthy work life balance .These activities may be social activities, daily physical activities, personal hobby enhancement activities, to reduce fatigue and burnout among nurses within their organizations. Retention policies should also be developed by nursing personnel who are aware of both; the work related problems and the interests of these nurses.

Bedside nurses on their part have vital roles in fulfilling their daily activities as they care for their patients, their families and themselves. Their input is very essential to determine factors that increase fatigue and burnout among them, and providing honest feedback to their nurse managers and nurse executives about these factors. Nowadays registered nurses are members in shared governance councils and work life balance councils so their opinion is heard and valued within decision making processes. To add some are also members in professional organizations at the national and international levels which helps them to get innovative ideas and raise it the attention of their superiors. Applying internal evidence to design a program similar to Accelerated Recovery Program (ARP) (Gentry et al.,1997) to reduce burnout and increase compassion satisfaction will acclimate healthcare staff to better manage themselves, their patients ,and their families (Potter et.al,2010).

Center C should consider in consultation with bedside nurses how best to design, introduce and evaluate an evidence-based program to assist nurses to protect themselves from fatigue and accelerate their recovery. Monitoring levels of fatigue on a regular basis would be an integral part of the program

APPENDICES

APPENDIX A

COVER LETTER

'prevalence of fatigue and burnout in a sample of Lebanese beside nurses'

Dear All,

We are conducting a study to identify the prevalence of fatigue and burnout in a sample of Lebanese bedside nurses. The following survey is composed of a questionnaire that is intended to assess the extent of fatigue and burnout among a sample of Lebanese bedside nurses, and identify the interrelationships between fatigue, burnout and compassion satisfaction. It has a demographic section, a tool for measuring fatigue (OFER) and another tool that measures compassion satisfaction, burnout and secondary traumatic stress (PROQOL VERSION 5).Please read the consent form before answering the questionnaire.

Participating in this study is voluntary. By completing the questionnaire and returning it to the survey box placed at the nursing station in your unit, you are confirming your voluntary participation in the study. Your answers will be reviewed only by the research team and they will be kept anonymous. The entire survey takes 20 minutes to complete. Further information about the study is attached.

Should you have any questions please contact.

Primary Investigator: Dr. Michael Clinton-mc42@aub.edu.lb. HSON ext. 5956

Student Investigator: Hasmig Tchaparian –ht15@aub.edu.lb. Mobile 71/469389

APPENDIX B

CONSENT DOCUMENT

Primary Investigator: Dr. Michael Clinton, Professor, HSON

Student researcher/Co-Investigator: Mrs. Hasmig Tchaparian, HSON

Co-Investigator: Dr. Souha Fares, Lecturer, HSON

Consent document

Prevalence of Fatigue and Burnout in a sample of Lebanese Bedside Nurses

We are asking you to participate in a **research study**. Please read the information below and feel free to ask any questions that you may have.

A. **Project Description**

1. In this study, you will answer questions in a survey questionnaire, to identify of fatigue and burnout in Lebanese bedside nurses

2. The estimated time to complete this study is approximately 20 minutes.

3. The research is being conducted with the goal of meeting part of the requirements for the award of an AUB Master in Nursing Sciences Degree, publication in an academic journal, and possible presentation at academic conferences.

4. Data you provide in the questionnaire will be collected and analyzed. The results of the survey will be published as a project report available at the AUB Jafet Library.

5. You will not receive payment for participation in this study. You may refuse to participate or withdraw at any time without consequences of any kind.

B. **Risks and Benefits**

Your participation in this study does not involve any physical risk or emotional risk to you beyond the risks of daily life

You have the right to withdraw your consent or discontinue participation at any time for any reason. Your decision not to participate or to withdraw your participation at any time will involve any penalty or loss of benefits to which you are entitled. Discontinuing participation in no way affects your relationship with AUB.

You will receive no direct benefits from participating in this research study. However your participation will help the investigators understand fatigue and burnout in a sample of Lebanese bedside nurses

C. **Privacy and Confidentiality**

The survey is completely anonymous. There is no way you can be identified. Only aggregate results will be reported. No information will be collected that could possibly link you to a returned questionnaire.

Printed copies of returned questionnaires will be kept in a locked drawer in a locked office at HSON. Data access is limited to the Principal Investigator and researchers working directly on this project. The data collected will be analyzed on a password protected computer in HSON. Electronic data will be destroyed immediately after completion of the project report. Printed data will be destroyed responsibly after the required retention period (three years from completion of the study.)

D. **Contact Information**

1) If you have any questions or concerns about the research you may contact ;

Principal Investigator: Dr. Michael Clinton – mc42@aub.edu.lb- HSON ext 5956

Student Researcher and Co-Investigator: Mrs. Hasmig Tchaparian-ht15@aub.edu.lb- Mobile   71-469389

2) If you have any questions, concerns or complaints about your rights as a participant in this research, you can contact the AUB: Social & Behavioral Sciences Institutional Review Board: Telephone: 00-961-1-374374 Ext-5445; Facsimile: 00-961-1-374374 Ext-5444; Email: irb@aub.edu.lb

E. Participant rights

Participation in this study is entirely voluntary. Your decision not to participate or to begin participating and stop is no way influences your relationship with AUB.

Returning a questionnaire confirms your informed voluntary consent to taking part in this survey.

PLEASE COMPLETE THIS QUESTIONNAIRE IN YOUR NON-DUTY TIME

APPENDIX C

Questionnaire

You are cordially invited to participate in a survey conducted at Center C and other health care centers in Lebanon, to identify the prevalence of fatigue and burnout among Lebanese bedside nurses. This questionnaire will take approximately 20 minutes to complete. Your participation in this survey is totally voluntary. This survey will be anonymous. Your opinion is very important to us.

Thank you for your participation.

Appendix C - PART 1

Demographics:

1. Age

1. Less than ≤ 24
2. 25-35
3. 35-45
4. 45-50

2. Gender

1. Male
2. Female

3. Marital Status

1. Single
2. Married
3. Divorced
4. Others (Specify: ………………….)

4. Number of Children

(.........)

5. Number of Dependents

(.........)

6. What is your Highest Level of Education?

1. BS in Nursing

2. Master's in Nursing
3. Others (Specify: ………………….)

7. How many hours of sleep do you usually get in 24 hours?

(………)

8. Do you get enough rest before you start your next shift?

(………)

9. Are you obliged to work extra hours?

(………)

10. Do you work in a second job?

1. Yes
2. no

11.Health care center you are employed at:

(…………………………………………………………….)

Appendix C - PART 2

Appendix C-Part 2 is The Occupational Fatigue Exhaustion Recovery Scale (OFER 15).

Items of OFER scale cannot be shown due to copyright restrictions .For information about OFER

and scoring please contact Dr. Peter Winwood [mailto:Peter.Winwood@unisa.edu.au

Appendix C Part 3

COMPASSION SATISFACTION AND COMPASSION FATIGUE
(PROQOL) VERSION 5 (2009)
When you *[help]* people you have direct contact with their lives. As you may have found, your compassion for those you *[help]* can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a *[helper]*. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the *last 30 days*.

	Never	Rarely	Sometimes	Often	Very Often
I am happy	1	2	3	4	5
I am preoccupied with more than one person I [help]	1	2	3	4	5
I get satisfaction from being able to [help] people	1	2	3	4	5
I feel connected to others	1	2	3	4	5
I jump or am startled by unexpected sounds	1	2	3	4	5
I feel invigorated after working with those I [help]	1	2	3	4	5
I find it difficult to separate my personal life from my life as a [helper]	1	2	3	4	5
I am not as productive at work because I am losing sleep over traumatic experiences of a person I[help]	1	2	3	4	5
I think that I might have been affected by the traumatic stress of those I [help]	1	2	3	4	5
I feel trapped by my job as a [helper]	1	2	3	4	5

Because of my [helping], I have felt "on edge" about various things	1	2	3	4	5
I like my work as a [helper]	1	2	3	4	5
I feel depressed because of the traumatic experiences of the people I [help]	1	2	3	4	5
I feel as though I am experiencing the trauma of someone I have [helped]	1	2	3	4	5
I have beliefs that sustain me	1	2	3	4	5
I am pleased with how I am able to keep up with [helping] techniques and protocols	1	2	3	4	5
I am the person I always wanted to be	1	2	3	4	5
My work makes me feel satisfied	1	2	3	4	5
I feel worn out because of my work as a [helper]	1	2	3	4	5
I have happy thoughts and feelings about those I [help] and how I could help them	1	2	3	4	5
I feel overwhelmed because my case [work] load seems endless	1	2	3	4	5
I believe I can make a difference through my work	1	2	3	4	5
I avoid certain activities or situations because they remind me of frightening experiences of the people I [help]	1	2	3	4	5
I am proud of what I can do to [help]	1	2	3	4	5
As a result of my [helping], I have intrusive, frightening thoughts	1	2	3	4	5
I feel "bogged down" by the system	1	2	3	4	5
I have thoughts that I am a "success" as a [helper]	1	2	3	4	5
I can't recall important parts of my work with trauma victims	1	2	3	4	5
I am a very caring person	1	2	3	4	5
I am happy that I chose to do this work	1	2	3	4	5

Thank you ☺

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