

Integrated Literature Review and Comparison of Nursing fatigue and risk management in Jordan and Western country Nurses: triggers and mitigation strategies

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Abstract

The aim of this study is to identify possible triggers for the nursing workforce. Furthermore, it compares whether the triggers found in Jordan are similar or different from other countries. The countries of comparison in the study are the UK and USA as a representation of the Western culture nations. This is for a long-term strategic aim of improving the quality of nursing workforce life. In developing the required analysis, the study material has been collected from databases with recognised, peer-reviewed, and professional journals on nursing. The articles were sought from a diverse database source. Some of the core databases used obtained dataset was Scopus, CINAHL and MEDLINE. The review applied an inclusion criterion where the studies with a whole article available online and which were published in English. Further, the inclusion criterion was based on the study focus and locations. This includes the studies developed specifically for the Jordanian market and those in the UK and USA. Studies focusing on all types of nurses regardless of their served units were included. The exclusion criteria were for studies that were oriented in the pre-2015 period and which did not directly address the issue of nursing fatigue in Jordan and the Western countries. The definition of nurses was limited to registered nurses only.

Overall, the key words used were based and selected hedged on the study objectives. This means that for this study, the articles that fitted the initial search for inclusion criteria for consideration in the analysis. In search for the required data and information, the analysis used the keywords "fatigue", "risk management", and "fatigue mitigation", which were core focus areas. Other applied terms were "tiredness", "exhaustion" and "lethargy". These were synonyms that would help in capturing other studies discussing nursing fatigue. Besides the single keywords, the search also includes a combination of phrases such as "culture and gender effect on the nursing fatigue", 'refugees' effect on nursing', among others. The target population base was nurses from across the hospital units. The article analysis demonstrates that the main prevalent forms of nursing fatigue in Jordan were physical and mental nursing fatigues. This is fatigue based on long working hours, lack of external motivation, lack of improved living standards leading to demotivation, and a rising refugee's index in Jordan. Furthermore, it demonstrated that the contextual variables of culture influence on the nursing fatigue index, leads to a higher fatigue index on female nurses than their male counterparts. This is due to the theory of the social role that allocates the additional tasks when at work and when off duty at home. In mitigating the challenges, according to the study, it's shown that providing manageable schedules with proper rest breaks reduces fatigue levels.

Keywords: Nurses fatigue, mental fatigue, nurse age and fatigue, nurses' gender and fatigue, Jordan nurses' fatigue, fatigue types, mitigating nurses' fatigue.

Introduction

This review develops a critical examination of triggers for nursing fatigue. The rationale and value of the review are pegged on findings by previous studies such as Waters and Dick (2015) and Knupp, Patterson, Ford, Zurmehly and Patrick (2018). The studies illustrated that the existing nursing fatigue index within a country has a direct relationship and correlation on the nursing quality levels. Thus, this review is an examination of the nursing levels in Jordan and how they are unique and differ from other jurisdictions such as in the Western countries. The findings form a basis for the creation of unique and customized nursing fatigue mitigation strategies for the Jordanian nursing workforce.

The study analysis is an integrated literature review, which indicates that it applies a critical examination of existing literature on the topic. In its report, the study focuses on the triggers for nursing fatigue. This expands to the causative factors as well as the contextual factors that may accelerate nursing fatigue. In analysing the contextual factors, it examines the aspects of regional and cultural diversity comparing fatigue levels among Jordan nurses, and their peers in Western countries. The analysis and need for

comparison are derived from findings such as the Domen, Connelly and Spence (2015) and Epstein, Soderström, Jirwe, Tucker and Dahlgren (2020) studies.

On their part, the studies illustrated that although the factors influencing and triggering nursing fatigue could be the same across cultures, different cultures have differing trigger levels and factors. The researcher has a cultural and social connection with Jordan and as such the need to evaluate if the exiting culture and contents in Jordan differ from other markets. The need for healthcare services in Jordan has been on the rise, mainly due to the rise in the refugee's numbers and a growing healthcare sector. There is need to examine how the healthcare workers can be protected against fatigue as a tool for improving healthcare services quality in Jordan. Other dimensions and variables considered in the analysis include age influence, working hours and shifts schedules, as well as the influence and impact of refugees on the nurse's fatigue index (Saleh et al., 2014). The provided mitigation strategies are hedged on the types of fatigue identified in Jordan, and the interactions of the variables with the context such as culture and motivation.

Background

The development of the integrated literature review was hedged on an understanding of the rising aces of nurse's fatigue in Jordan. As Steege, Pinekenstein, Rainbow and Knudsen (2017) described it, nursing fatigue is the lack of enough rest and the resulting exhaustion and inability to function to the optimum among nurses. In the definitions, other studies such as Zarea, Mohammadi, Beiranvand, Hassani and Baraz (2018) and Steege and Rainbow (2017) noted that additional terms used to refer to fatigue included exhaustion, tiredness, and lethargy. Overall, the Ismail, Malak, and Alamer (2019) study demonstrated that nursing fatigue is manifested in a variety of dimensions including the physical, mental, compassion, and emotional fatigue.

A preliminary analysis of the existing literature on the Jordan nursing workforce and fatigue, such as the Verma, Kishore and Gusain (2018) focusing on Indian but mentioning Hordna and Ismail, Malak and Alamer (2019) study on Jordan, demonstrated that the most prevalent forms of fatigue are the physical and the mental fatigues. Focusing on all the fatigues would have crated wide pool of findings but as such deny the study the advantage of in-depth analysis on the respective fatigues. Thus, the study narrowed its focus down to the tow most prevalent nursing fatigue types in Jordan, the physical and the mental fatigue types.

According to Saleh et al. (2014), the nursing workforce in Jordan has experienced a rising fatigue index over the last decade. This is a rise in fatigue that according to the theoretical literature examined above, results to a decline in the level of nursing quality care given. With the rising refugees' cases and a demand for nursing care, it was imperative to examine how the fatigues emerge and can be mitigated in the Jordanian society.

Hence, it was necessary to conduct a study that evaluates and identifies the triggers that has led to a rise in the fatigue index, as well as recommends mitigation strategies in the long-run period. Some of the existing studies in the topic include the Barker and Nussbaum (2011) and Chen et al. (2014) studies. One standard variable in the two studies show that the main focus of the study is in western and developed countries like Europe and USA, however, the findings are generalisable to other countries. Saleh et al. (2014) asserted that the existing contextual factors in Jordan such as the level of healthcare infrastructure development, the existing market culture, and the level of training among others influence the fatigue index and triggers, which informs the rationale and the need to develop the study. In its overall aim, the study seeks to establish a mitigation strategy, exclusively customized for the Jordanian nursing workforce. This is a practical framework in the literature that is generally missing in the evaluated studies. Additionally, there's a lack of clear comparison of the similarities and differences on triggers for nursing fatigue in Jordan and other countries. The three predominant areas of focus in the study were the nursing fatigue triggers, managing nursing fatigue, and comparing nursing fatigue context in Jordan with Western countries.

Methodology Data Collection

In collecting reliable and credible data, diversity and credibility are imperative. First, trustworthiness and reliability are hedged on the used database. Secondly, diversity is acquired by using more than a single database. The analysis collected articles and data from three primary databases. They are the Scopus, MEDLINE, and CINAHL. The use of the diverse articles basis was to ensure that the analysis incorporated as much information and literature as possible. The analysis narrowed down its search scope in each of the databases

to articles published between 2015 - 2020, this narrow timeline allows the relevance of the obtained article findings to the study analysis process. In search for the required data and information, the analysis used the keywords "fatigue", "risk management", and "fatigue mitigation", which were core focus areas. Other applied terms were "tiredness", "exhaustion" and "lethargy". These were synonyms that would help in capturing other studies discussing nursing fatigue. Besides the single keywords, the search also includes a combination of phrases such as "culture and gender effect on the nursing fatigue", 'refugees' effect on nursing', among others. Other terms that were included with each of the keywords were "Nurses" "Nurses in Jordan" and "Nurses in the West" 'age and nursing fatigue', 'gender and nursing fatigue', 'refugees and nursing fatigue', 'culture and nursing fatigue'. The researcher further scanned through the references of the obtained articles to identify articles that might have been missing during inclusion. The limiters for the search process to ensure relevance were the year of publication, language of publication, and connection to Jordan or the Western countries. As such, articles obtained were screened based on titles, abstracts, and full texts available for inclusion, without which, the articles are automatically removed. Finally, the analysis focused on ensuring that the articles were written in English, Figure 1 showed the flowchart of the study selection criteria following PRISMA technique.

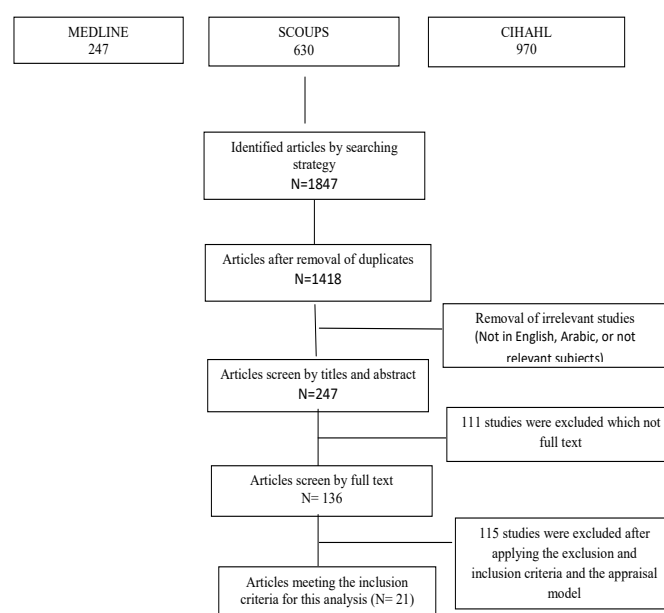


Figure 1: Flowchart of the study selection process

Data Analysis

As an integrated literature analysis, the strategic focus of this analysis was to critically analyse data to ensure that the established study aim and overall objectives were delivered and realized. This was determined by analysing the sampled and obtained data, as mentioned in the above findings. Once the required study findings and data had been established, the next logical step in the literature was data analysis. This is the investigation and critical examination of the obtained data to establish meaning, patterns, and trends, respectively.

As illustrated in the data collection section, the received data comprised of a combination of the qualitative, the quantitative, and the mixed research methods. Hence, the data analysis method

required an application of a strategic approach and analysis system that incorporated the different data sets. Overall, the study used and applied a thematic analysis model. This is an analysis model that segregated the findings based on the different themes and issues represented in the analysis. The main focus areas were categorized into the other types of fatigue standard among the Jordanian nurses, the triggers for the nurses' fatigue, their variance with other countries such as UK and USA, and finally, the nurses fatigue mitigation strategies. The first study focus area was on the nursing fatigue triggers in Jordan.

Eventually, the final themes analysed in the study were the mitigation strategies. The fatigue mitigation strategies were based on global best practices that have been adopted and applied in the western countries while addressing nursing fatigue. In analysing this theme and recommending the ideal mitigation strategies, the study not only focused on the best practices, but also on the possibility of the strategy's customization and practical applicability in the Jordanian nursing workforce context. This included ensuring that the best-practice recommendations were aligned with the country-

specific and unique needs.

Overall, the thematic analysis model allowed for the integration and the combination of all the different forms of data. For each analysed theme, the study ensured that there was a combination of qualitative data depicting the subjective events of the variables and the quantitative studies to analyse and include the quantitative elements of the variables. Furthermore, each theme had several mixed research studies, to ensure that there was an adequate and reasonable representation of each of the study variables and dimensions. A summarized view of the literature articles collected and used in the study analysis is illustrated below.

#	Authors/ Year	Aim	Sample and setting	Findings	Main themes on fatigue
1	Abdalahim, M.S., Herzallah, M.S., Zeilani, R.S. and Alhalaiqa, F., 2014.	The study aims at evaluating and investigating the link between creating a rest management system and nurses fatigue mitigation.	Sample base of 81 nurse in the oncology department	In a case study of Jordanian nurses working with Cancer patients indicated that one of the primarily applicable fatigue management practices is the establishment of activity and rest management system. This is a system that focuses on ensuring that there is the creation of a work-life balance practice for the nurses	Mitigating nurses' fatigue
2	Barker, L.M. and Nussbaum, M.A., 2011.	The study was an investigation of the impact of work timelines and shifts on nurses' fatigue. This mainly focused on mental fatigue. This was a study evaluating how nursing mental fatigue impacts their productivity and functioning	The study used a convenience sampling technique on 745 registered nurses completed the survey between February 2008 and April 2009. Additionally, it sampled subjective opinions from the nurses through interviews	The study established that nursing fatigue levels had a direct negative influence and impact on the employees/nurses' productivity levels. This creates a basis for understanding mental nurses' fatigue	Mental nurses' fatigue

3	Chen, J., Daraiseh, N.M., Davis, K.G. and Pan, W., 2014.	The study aim is to evaluate the re role of flexible working systems and reduced shift hours on nurse’s fatigue index. The analysis indicated that there as a direct link between work-life balance practices and reduced nursing fatigue.	Continuous recording of working heart rate and random observations of nursing activities were applied to collect data from eight nurses during two consecutives 12 h day shifts	In the USA context, it noted that private health care facilities had adopted a flexible working model. This is a model that allows the nurses a flexible working schedule both in the flexible working hours and in the compartmentalization of the working hours	Mitigating nurses’ fatigue
4	Doumit, Kazandjian and Militello (2018).	The study was an evaluation of the influence of refugees increase in the Middle East, including Jordan on the nursing fatigue index.	A sample of adolescent refugees (13-17 years) living in Lebanon. The experimental study design was used. COPE 7-Session was delivered to 31 adolescent Syrian refugees	The analysis showed that there is a growing number of HR constraints in the Middle East in regions such as Syria and Lebanon. This has resulted in the migration of refugees into markets such as Jordan. As a result, this has disproportionately affected the nurse’s patients ration, increasing the number of patients served by a nurse	Nursing fatigue triggers
5	Eriksson, Gotway Crawford, Zhu, Rijnen and Kaiser (2013).	An evaluation of the impact of Iraq refugees into Jordan and the implications it has on the Jordanian nursing workforce fatigue	Used a need assessment survey evaluating the nurse’s assessment of the impact of refugees on their workplace quality	The study demonstrated that the rise of Iraq refugees in Jordan has increased strain on the nurses causing physical fatigue among the nurses.	Refugees impact on nursing fatigue
6	Ferris (2015).	An evaluation of the impact of the culture as a variable dictating on gender-based fatigue indices among Jordanian nurses.	A sample of 258 nurses and a sample of the quality of life for the female nurses in Jordan	The study noted that cultures, with a social roles theory on women performing domestic duties, overloads the nurses both on shift and while of a turn, increasing the risk of their fatigue in the long-run period	Culture effect on nursing fatigue
7	Geiger-Brown,	An evaluation of the impacts of the nursing departments on the fatigue levels. This was through a case study of the oncology department, indicating the specific market variables that influence the nurse fatigue	A sample base and a representation of the oncology department in the nursing department. In this focus, it was interviews with the nursing in-charge staff within the different facilities within the UK	The analysis, through a focus on the oncology department illustrated that the departmental unique needs such as the care needed for cancer patients influence and dictate on the fatigue levels.	Departments influencing the nursing fatigue

8	Gillman, L., Adams, J., Kovac, R., Kilcullen, A., House, A. and Doyle, C., 2015.	On its part, the review was an investigation of avenues to promoting nurse's resilience when supporting and working with cancer patients	A systematic review of literature on the trigger for nursing fatigue. Focused on the oncology department nurses and fatigue triggers	The focus demonstrated that one of the triggers of nursing fatigue is increased workload and working hours among the nurses	Nursing fatigue triggers
9	Griffiths, Dall'Ora, Simon, Ball, Lindqvist and Aiken (2014).	An evaluation of the role and influence of culture on the index and level of nursing fatigue.	The study had its survey base geographically expansive. The study used statistical data collection tools. It was a cross-sectional survey of 31,627 registered nurses in general medical/surgical units within 488 hospitals across 12 European countries.	The study argued that the existing culture in Europe was a professional perception of the nurses and the creation of support systems for the nurse while off shift	Culture influence and trigger on nursing fatigue
10	Hamama-Raz and Minerbi (2019).	It was an investigation of the implications and impacts of fatigue among nurses.	One hundred and fifty-three rehabilitative nurses completed self-report questionnaires regarding personal data, post-traumatic growth, secondary traumatization, ways of coping strategies and individual adverse life events.	The analysis demonstrated that the nurse was highly and significantly predisposed to trauma/mental fatigue as opposed and compared to their peers in other departments	Nursing fatigue triggers
11	Saleh, Darawad and Al-Hussami (2014).	The study was an investigation of the influence and impact of gender on nursing fatigue. It investigated if gender influenced the level of the nurse's fatigue.	210 registered nurses were selected from 8 Jordanian hospitals who met the eligibility criteria. A stratified randomised selection procedure was used for hospital selection	The study indicated that female nurses had a higher fatigue index than their male counterparts. Its analysis showed a 0.672 correlation between gender and nursing fatigue	Gender as a trigger and variance in nurses fatigue index
12	Scott, Hofmeister, Rogness and Rogers (2010).	The study was an investigation of the variables and the existing contextual Jordanian market triggers for the rising nursing fatigue levels.	The study Offered a comparative study. Was an ILR study that evaluated and compared different longitudinal findings to establish a pattern and the key influencing factors for the rising fatigue levels	The study findings demonstrated that there was a direct relationship between the cultural dimensions in Jordan and nursing fatigue index.	Nursing fatigue triggers

13	Steege, L.M. and Dykstra, J.G., 2016.	An evaluation of the nursing fatigue triggers the different factors influencing this	The study applies a qualitative thematic analysis model. Themes related to sources of fatigue within each of the five primary components of the SEIPS work system were identified, along with barriers and facilitators to nurses' experiences and strategies for coping with fatigue.	The study established that one of the causative factors for nursing fatigue is mental exhaustion and strain due to long working hours and irregular rest schedules.	
14	Steege, L.M., Pasupathy, K.S. and Drake, D., 2014.	An evaluation of the nursing fatigue triggers the different factors influencing this	The study was a conference paper that used a secondary data analysis method. It combined the qualitative and quantitative studies in developing its findings	The study indicated that culture and working hours were influencing factors on nursing fatigue index	Nursing fatigue triggers
15	Wang, W., Wang, P., Zhou, X., Liu, Y. and Zhang, H., 2010.	An evaluation of the impact and influence of gender on the nursing fatigue index. It aimed at examining if gender played a role in creating a variance between the male and the female nurses' fatigue index and levels.	A survey was conducted by using a questionnaire of, Fatigue Scale -14 (FS-14) and Nurse Job Stressors Scale in 306 nurses	It demonstrated that die to the social roles' theory, there was a variance. However, the variance was significantly low.	The role of gender in influencing nursing fatigue
16	Yumang-Ross, D.J. and Burns, C., 2014.		The study sampled 145 nurses through questionnaires and an additional 30 through interviews. The interviews were semi-structured interviews to allow for posed questions standardisation	The study was an evaluation of the implications of nursing fatigue. Thus, it focused on examining the impacts of such fatigue on the nurse's personal and professional duties. The analysis noted that nursing fatigue was directly related to increased nursing and workplace injuries, operational/ professional errors and mistakes, declining productivity and declining health levels	The rationale for mitigating nursing fatigue

17	Danielle M. Olds a, Sean P. Clarke b, 2010	The relationship between registered nurses' extended work duration with adverse events and errors, including needlestick injuries, work-related injuries, patient falls with injury, nosocomial infections, and medication errors	11,516 registered nurses examined nurse characteristics, work hours, and adverse events and errors	increased work hours raise the likelihood of adverse events and errors in healthcare, and further found the same relationship with voluntary overtime	The effect of work hours on adverse events and errors in health care
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Definition and Topic Context

The main focus of the literature analysis will be on the causes of nursing fatigue, certain specific and unique factors that generate nursing fatigue among Jordan nurses in comparison to the Western countries, followed by the strategies being adapted to address and mitigate nursing fatigue as well. Furthermore, the analysis also addresses the gender based and cultural impact on nursing fatigue in Middle Eastern countries, especially Jordan, a comparison between the western and eastern societies/cultures is also talked about, as well as discussing the impact of refugees on the nursing workforce. Moreover, nursing fatigue in Jordan, and Western countries, mainly Western Europe, is deeply discussed.

Fatigue is generally determined as extreme feelings of exhaustion and lack of energy as a result of physical, or mental exertion or a combination of both (Olds & Clarke, 2010). According to Barker and Nussbaum (2011), their study was an investigation of the different types and forms of nursing fatigue, it stated that fatigue is a form of physical or mental exhaustion. In understanding nursing fatigue, the Steege et al. (2014) and Yumang-Ross and Burns (2014) studies are applicable. The Steege et al. (2014) study noted that nursing fatigue is directly linked to their wellness, health, and social being index levels. Thus, to promote nurse's well-being, their social life, health, and overall productivity, it was vital to examine the fatigue triggers, therefore allowing alternative solutions to the challenge. This is a finding that is replicated in the Yumang-Ross and Burns (2014) study. The analysis noted that nursing fatigue was directly related to increased nursing fatigue, operational/ professional errors and mistakes, declining productivity and declining health levels. The above findings illustrate that nursing fatigue not only affects the nurses themselves at a professional and personal level but also their family and social lives, as well as endangering their patients and peer's health. These assertions formed the rationale and basis for the study critical analysis and findings investigation. Nevertheless, the Geiger-Brown et al. (2012) study noted that fatigue among nurses equally differed based on their served departments and regions. This is a finding and assertion evidenced by the Hamama-Raz and Minerbi (2019) study. The Hamama-Raz and Minerbi (2019) study was an investigation of the implications of fatigue among nurses. The analysis demonstrated that the mental fatigue index was significantly higher as opposed to their peers in other departments such as those in the paediatrics wards. Equally, Zhang et al. (2019) analysis was an investigation of the role/impact of departments on nurses' fatigue. Through focusing on the concept of safe night shifts, the analysis noted that nurses

working in different contexts such as the shift hours and patients served demonstrated differing fatigue levels. Those with longer hour's shifts (9-12 hours) had a higher physical nursing fatigue index than those with less hours shifts (8 hours)

Nursing Fatigue Triggers

One of the leading triggers for nurses' fatigue is work overload. This is an aspect demonstrated by the Barker and Nussbaum (2011) and Geiger-Brown et al. (2012) studies. On the one hand, Barker and Nussbaum (2011) study evaluated and investigated the impact of work timelines and shifts on nurses' fatigue. This mainly focused on mental fatigue. This is a form of fatigue in which the nurses are less appealed to and are less empathetic to dire patients' cases due to exhaustion. The analysis investigated the level of mental and physical fatigue among nurses with different timeline shifts. The sample base shift timelines varied from 8 to 12 hours. In its analysis, it established that those attending 12 hours shifts had a 15% higher risks and chance of fatigue than those attending to 8 hours change. This is a finding assertion that was a reflection of an earlier classical study by Josten, Tham and Thierry as latter cited by Geiger-Brown et al. (2012). The Geiger-Brown et al. (2012) study was an empirically quantitative study. It used a sample base of 134 nurses in the Netherlands. In the analysis, the focus was to evaluate if the longer working shifts, had an impact on the nurse fatigue index. This was realized by comparing the 8 hours shift to the 12 hours shift. Additionally, an extended hour shift, 9hours shift was introduced. The study tested the hypothesis that extending the 8 hours shift to the 9 hours shift would have allowed for the gains and combining of the 12 hours and the 8 hours shifts merits. However, in its analysis, the study failed to accept the hypothesis. Instead, it established that having an extended hour shift combined the disadvantages of the 12 hours and the 8 hours shifts. This meant that the fatigue index for the 9 hours shift was increasingly higher as compared to the 8 hours shift. This is a finding that the study directly attributed to increased working timelines. Thus, a general conclusion from both studies illustrated that there was a positive direct collection between working hours/number of hours per shift worked and the risk and extent of nurse's fatigue index. Additionally, the Eriksson et al. (2013) and Doumit et al. (2018) studies indicated the role and influence of refugees on nursing fatigue in the Middle East. In a case study of Jordan, Eriksson et al. (2013) showed that there is a growing number of nursing staff shortages in the Middle East in regions such as Syria and Lebanon (Doumit et al., 2018). This has resulted in the migration of refugees into markets such as Jordan. Thus, the study noted that this has

disproportionately affected the nurse:patient ratio, increasing the number of patients served by a nurse. As a result, this has led to work-related physical fatigue due to overworking by the nurses to cater to ever-rising patients' demands and needs.

Studies conducted by Hamaideh (2011), Saleh et al. (2014), and Alfuqaha and Alsharah (2018) evaluate the relationship between gender and nursing fatigue. This was a holistic analysis that encompasses both the Middle East and the Western market contexts. The Hamaideh (2011) and Jarrad et al. (2018) studies were on the Middle East and Jordan nursing fatigue context. In the analysis, they demonstrated that there were gender differences in nursing fatigue. For instance, the Saleh et al. (2014) study indicated that the female nurses had a higher fatigue index than their male counterparts. Its analysis showed a Pearson Coefficient correlation index of 0.672 between gender and nursing fatigue, which implies that female nurses were more likely to experience fatigue than their male counterparts. This is a phenomenon and scenario explained by the Alfuqaha and Alsharah (2018) study, deriving the used theory from a classical study by Becker and Geer (1960). The study indicated that under the Social Role Theory, the female nurses have additional family roles and obligations, risking their energy exhaustion. This is a finding and scenario that was different in the Western countries culture.

According to Wang et al. (2010) findings, there was no correlation between gender and nurses' fatigue. Based on the above findings, the findings in the ILR analysis concluded that the nurses in the western market are subjected to minimal social roles theory. This means that the social and family obligations for both genders are the same in the west market societal context. In the UK and USA, the nation's cultural analysis, under the Hofstede cultural dimensions indicate a higher balance between masculinity and femininity. This is unlike in Jordan where the masculinity index is higher. Thus, while as there is a cultural orientation to shared roles such as domestic shores among the men and women in the western market, this is the inverse case in Jordan. In this culture, such roles as viewed as exclusively female based. Thus, female nurses have a higher workload at home in Jordan than in the west countries, hence reducing their rest time while off duty significantly. Furthermore, the analysis explored the role of culture on nurses' fatigue. This was analysed through the inclusion of the Darawad et al. (2015), Ferris, (2015) and Griffiths et al. (2014) studies. First, the Darawad et al. (2015) review was an evaluation of the role of the Middle East and Jordanian culture on the nurses' fatigue index. The analysis demonstrated that culture has an impact on the nurse's fatigue, mainly due to the social roles' theory. In an analysis of the nursing fatigue index between the Middle East and the Western countries, the Zarea, Mohammadi, Beiranvand, Hassani and Baraz (2018) and Ismail, Malak, and Alamer (2019) studies indicated that the fatigue instances were higher in the Middle Eastern region. This was attributed to the existing Jordan culture. In this case, it established that the culture perceives female nurses' not only as professionals but also the primary family caregivers. Hence, even after their professional duties, they are expected to execute their domestic duties, which adds to their physical fatigue index. As Ferris (2015) illustrated, this overloads the nurses both on shift and while off.

Managing Nursing Fatigue

One of the widely applied and recognized nursing fatigue mitigation strategy is encouraging teamwork to share responsibilities and reduce physical fatigue. This is as illustrated by the Gillman et al. (2015) study. On its part, the review was an investigation of avenues to promoting nurse's resilience when supporting and working with

cancer patients. The support for resilience is a basis for reducing the nurses fatigue levels and index. Some of the identified mitigation measures were fostering teamwork to lessen the individual burdens for patients' care, through training and development to manage and cope with stressful situations, and assisting and creating support groups to deal with emotional fatigue. The super of teams allowed for reduced workload thus reducing the risk of physical fatigue among the nurses. In support of the use of team work and nurse's support systems to reduce physical and mental fatigue, the Scott et al. (2010), and Steege and Dykstra (2016) study's findings can be cited. They all jointly, although referring to different context and populations, evaluate and discuss on the avenues and practices used in managing nursing fatigue.

Further, Abdalrahim et al. (2014), a case study of Jordanian nurses working with cancer patients, indicated that one of the primarily applicable fatigue management practices is the establishment of activity and rest management system. This is a system that focuses on ensuring that there is the creation of a work-life balance practice for the nurses. The work-life balance concept allows for ensuring and limiting the risk of employee fatigue through long working hours. The creation of shorter shifts (maximum 8 hours) allows for the reduction of physical strain, thus lowering the physical fatigue index among nurses. In a practical demonstration of this, the Jarrad et al. (2018) study, equally on the Jordanian market context, demonstrated that there was the adoption of the conventional shift system. This is a shift system that is by extension fixed. Thus, the nurses have a fixed working system that ensures that their bodies have a fixed working and resting schedule. It is the alteration of this schedule, mainly through longer working hours, that risk a high fatigue index. The same management context through managing work-life balance was demonstrated by the Chen et al. (2014) study. The focus of the research was on the USA nursing context. The analysis indicated that there as a direct link between work-life balances practices and reduced nursing fatigue. In the USA context, it noted that private health care facilities had adopted a flexible working model. This is a model that allows the nurses a flexible working schedule both in the flexible working hours and in the compartmentalization of the working hours. Thus, rather than the customarily fixed shifts, the nurses can compartmentalize two of their shifts and as such, acquire enough time to rest and have a social, personal life. This is a flexible working system that was further illustrated by the Chen et al. (2014) analysis. It affirmed that through allowing for a flexible working system, as well as reduced shift working hours, the nurses' physical fatigue was decreased significantly.

Findings Critical Analysis: Comparing the Middle East and Western Europe

Based on the above critical results of the existing studies, the following assertions and conclusions were established. An analysis of findings focusing on both jurisdictions such as Griffiths, Dall'Ora, Simon, Ball, Lindqvist and Aiken (2014) and Ismail, Malak and Alamer (2019) studies demonstrates that both regions have prevailing nursing fatigue challenges. This is to imply that the challenges in nursing fatigue apply across the different countries. However, a critical analysis of the analysed literature above demonstrated that the nursing fatigue is more prevalent and spread in Jordan and the Middle East as compared to the Western countries' context. The two nursing fatigue aspects analysed and examined are physical and mental fatigue, respectively. In analysing the triggers, the study demonstrated that both regions have the fatigue triggered by long working hours, and the high number of patients served per nurse. However, it illustrated that the influence of gender was higher and significant in the Jordanian market context. This is due to the existing

Middle East culture on social roles theory. Further, an examination of the western market culture indicated an equality culture than eliminate the issue and concept of gender in examining nursing fatigue. Finally, it demonstrates that the rising refugee case in Jordan has strained the nursing staff resources, thus increasing nursing fatigue. Although the literature review analysis has demonstrated the variance in triggers and the levels of fatigue among nurses in Jordan and the Western countries, there exists gap in the obtained literature. The findings fail to demonstrate the actual levels of fatigue, through an index empirical tool. This is an area that future studies should focus on. A majority of the studies mentioned a 'high' fatigue index. However, the actual figures and index level are rarely provided in the studies, a future study should develop an empirical study to measure the actual level of physical and mental fatigue among nurses in Jordan. This will help demonstrate the actual variance in fatigue levels between the examined contexts.

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