AN EXAMINATION OF THE ROLE DISCREPANCY, DEPRESSIVE SYMPTOMS, AND TURNOVER INTENTION AMONG THE JORDANIAN NURSING WORKFORCE

By

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DEDICATION

This dissertation is dedicated to my beloved parents, whom I would like to express thanks for being patient and supportive for their son from overseas, and to my lovely wife, Basema Nofal, and my two little boys, Waleed & AbdulRahman, whose patience, support, and inspiration has enabled me accomplish this work. Also, I could not have accomplished this work without the help and support of my brothers and sisters back home, and the close friends whom I met in the US, especially Abdullah Jordan.

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An Examination of the Role Discrepancy, Depressive symptoms, and Turnover Intention among the Jordanian Nursing Workforce

Abstract

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Globally, nursing shortage is affecting all components of patient care process, especially in the developing countries due to their lack of resources. Literature identified nurses' dissatisfaction with work environment and turnover as causes for the shortage, and the ambiguity of nurses' role as a cause for dissatisfaction. So, exploring nurses' role, as a part of their work environment, from nurses' perspectives is believed to formulate a compatible environment that is more appealing to nurses to stay.

Using the person-environment fit theory, this study tried (a) to describe role discrepancy, depressive symptoms, and turnover intention among the Jordanian ICU RNs; and (b) to examine the relationship of role discrepancy with nurses' depressive symptoms and turnover intention.

Using a descriptive correlational cross-sectional design, a convenience sample of 114 RNs from 8 ICU units, at the JUH, who were recruited and surveyed through interviews and self-administered questionnaires. Analysis included descriptive statistics, correlations, paired and independent *t*-tests and polynomial regression analyses.

Amongst the sample, 63.2% were females, 56.1% singles, and 93.9% holding the BSN degree, with average age 27.1 years, average period of nursing experience 4.7 years, and 3.9 years in current ICU. Nurses rated their satisfaction with their salary, work, and work environment as 5.6, 5.4, and 4.2, out of 10, respectively.

Nurses' ideal role conception was higher than their actual role (4.26 vs. 3.14, respectively, $p < .05$). Their reported level of depressive symptoms was 26.68, out of 60. Participants' average turnover intention was reported to be 3.59, with their professional turnover intention higher than their organizational turnover intention (3.71 vs. 3.4, respectively, $p < .05$).

Nurses' perception of role discrepancy was not found to have a statistically significant relationship with nurses' level of depressive symptoms or turnover intention. So, the hypothesized curvilinear relationship was not found useful to explain the relationship between the components of the role discrepancy with depressive symptoms or turnover intention. However, the low reliability and validity results of the NRCS and the modified WCS caused the results to be cautiously taken, and limited the generalizability of the findings. Further examination of those two instruments is recommended.

Chapter One

The purposes of this study were (a) to describe role discrepancy, depressive symptoms, and turnover intention among the intensive care unit (ICU) registered nurses (RNs) in Jordan; and (b) to examine the relationship of role discrepancy with both nurses' depressive symptoms and their turnover intention. This study is intended to explore those three concepts as a trial to understand why nurses are leaving the profession through focusing some light on the nurses' work environment. Also, this study aims to contribute to the efforts of decreasing the rates of turnover among the nurses, and alleviating some of the consequences of the shortage among the nursing workforces. This chapter will introduce the problem of the study, the significance for patients, nurses, and health care institutions; the conceptual framework, the assumptions, and the research questions that will be examined in this study.

Problem

The nursing workforce shortage is an issue that is raised on a regular basis by nurses themselves, health care researchers, health policy makers, and even by the media. This problem is a concern worldwide in both developed and developing countries because of its consequences on the health care systems such as decreasing the quality of nursing services, closure of hospital wards, increasing waiting times for patients and their families, increasing hospital length of stay, increasing the costs of care for patients and hospitals, and increasing morbidity and mortality rates among patients.

Nurses are considered as the “nucleus of the health care system” (Abualrub, 2007 p. 117), and they constitute the largest percentage among the health care professionals (Buerhaus, Auerbach, & Staiger, 2007). So, the shortage of the nurses constitutes the most important component of the health care workforce shortage, or

"imbalance" as was entitled by the World Health Organization (WHO) (2002), which occurs "when the quantity of a given skill supplied by the workforce and the quantity demanded by employers diverge at the existing market conditions" (p. 1).

The problem of nursing shortage is reported worldwide. Buchan (2002) reported that nursing shortage in the United Kingdom (UK) has created a human resources crisis with the associated turnover rates. In Australia, the government indicated that the expected shortage of RNs in 2002 was 31,000 nurses (Nursing Education review, 2002). Also, the Canadian Nurses Associations (CNA) (2002) confessed that the nursing shortage is deepening in Canada, and that the estimated shortfall of nursing positions by 2011 and 2016 is 78,000 and 113,000 nurses, respectively. In Jordan, Mrayyan (2006) reported that the Jordanian RNs' turnover rate was 18.4%.

The shortage in the nursing workforce is not a new problem as it was reported in American hospitals as early as 1915 (Friess, 1994). Since then, it continued to emerge in the big newspapers as the New York Times for April 12, 2001, which addressed it by stating that: "The nation is currently engulfed in a huge nursing shortage, which is going to get worse" (cited in WHO, 2002 p. 5), and on different famous news websites as www.cnn.com on May 8, 2001 under the title “U.S. nursing shortage going into crisis”. However, the future is not expected to be of any better as the demand for the RNs is expected to exceed the supply (American Nurses Association, 2002; Buerhaus et al., 2007; CNA, 2002; Scott, 2001).

According to Abualrub (2007), nursing shortage follows what is known by the economists by “hog cycle”, which refers to the non-storable products that need time to produce (McCloskey, 1995). This means that replacing the leaving nurses is not an easy process. So, with the stressful working conditions, we expect the turnover to

increase, and the enrollment in to the schools to decrease, and vice versa, with difficult replacement process. So, to solve this problem or to alleviate some of its consequences among nurses, we need to address the reasons behind this major issue. The United States General accounting Office (US-GAO) (2001a) has summarized the factors that lead to nursing shortage to include: (a) Aging of the nursing workforces resulting from the reduced entry of younger nurses to the profession; and (b) the nurses' job dissatisfaction.

The aging of the nursing workforce is documented in the literature. Buerhaus, Staiger, & Auerbach (2000) reported that the average age of the US RNs increased from 37 to 42 years between 1983 and 1998. Also, they reported that, during the same period, the percentage of the RNs younger than 30 years old dropped from 30% to 12%. According to the authors, the trend of aging among the RNs will continue within the next two decades. On the other hand, the American association of Colleges of Nursing (AACN) (2000) reported that the rate of nursing students enrollment in to the bachelor degree declined by 6.6% in 1997, 5.5% in 1998, and 4.6% in 1999. These declining rates of enrollment are considered very sharp in contrast to the escalating demands for the nurses (Scott, 2001). The same problem was reported in Canada by the CNA (2002) when they reported that 50% of the employed nurses are expected to retire within 15 years, and that the annual graduation rate from Canadian nursing programs is about one third of the required 18,000 new nursing graduates per year.

The second cause identified by the US-GAO was the nurses' job dissatisfaction, which was found to contribute to both problems of recruiting and retaining nurses. Aiken et al. (2001) stated that the nurses' job dissatisfaction and their levels of burn out are considered of special importance within the context of

nursing shortage. Also, they reported that more than 40% of the US nurses reported being dissatisfied with their jobs. Moreover, they concluded that nurses surveyed in the USA were "three to four times more likely than the average US workers to be unhappy with their positions" (p. 46). Not only that, but also their results revealed that the low satisfaction and the low morale among hospital nurses was reported in countries other than the USA as Canada, England, Germany and Scotland, which are all western countries.

As a result of the nurses' job dissatisfaction, the turnover rates among RNs have increased to significant levels, which are considered a challenge facing the health care organizations and are growing year by year. Among those rates is what was reported by the Nursing Executives Center (2000) that the turnover rate among US hospital nurses raised from 12% in 1996 to 15% in 1999. Another survey by the Hospital and Healthcare Compensation Service (HHCS) (2000) revealed that the turnover rate for the overall US hospital nurses has doubled in just 2 years (from 11.7% in 1998 to 26.2% in 2000).

Peterson (2001) stressed on that in order to understand the nurses' job dissatisfaction, we need to look to the nursing work environment, which not only has a negative impact on the retention of the RNs, but also on the ability of the profession to recruit new nurses. However, the nursing work environment is known by the high workload, critical decisions, more stress, less satisfaction, low social status, and deterioration of the support system. All in all, the nursing work environment is best described as "more continuous and less rewarding" (Coffman, Spetz, Seago, Rosenoff, & O'Neil, 2001 p. 3). According to Peterson (2001), without addressing the nursing work environment, the strategies to plan for the nursing workforce and to resolve the nursing shortage will not be effective.

The unhealthy work environment is known to cause a reality shock among the new nursing graduates when they start their practice. Reality shock emerges as a result of the differences between what the nurses are expecting and the reality of their clinical practice (Kramer, 1974; Nelson & Hillan, 1995). It starts with nurses as early as when they are students because usually they have fewer opportunities to participate in professional development and planning patient care (Yung, 1996). Unfortunately, not only new nurses feel this difference, but also the experienced nurses are suffering from the reality shock or the gap between theory and practice (Landers, 2000; Takase, Maude, & Manias, 2006b).

The lack of specification of the nursing role is considered among the conditions that makes the nursing work environment difficult for nurses. For example, RNs are often asked to do things that are not in their job description. Dworkin (2002) reported that whenever there is a shortage of the nursing assistants, nurses are usually asked to fulfill their roles including emptying garbage and changing beds. This dual role requirement is known in the literature with "role conflict" and "role discrepancy", which was one of the major risk factors identified by Takase et al. (2006b) to contribute to the nurses' intention to leave their jobs. Role discrepancy is considered as a state of incompatibility between the nurses and their environment in terms of their expected and actual roles (Takase, 2005). This state of incompatibility between nurses expected role and their actual roles might lead to psychological and behavioral consequences.

Psychologically, little is known regarding the effects of role discrepancy on nurses. However, it is known that stress, burnout, and depressive symptoms are considered among the greatest psychological manifestations across all professional groups (Chan & Huak, 2004; Vachon, 1987). Walker (2008) stated that “problems at

work can very quickly become a symptom and a cause of the disease" (p. 4). For example, Ruggeiro (2003) reported that 23% of the surveyed US nurses met the criteria for mild, moderate, or even the severe depressive symptoms. Also, according to Bennett, Lowe, Matthews, Dourali, & Tattersall (2001), more than 37% of the surveyed nurses were above the cut-off point for moderate level of tress, and 19% were above the cut-off point for severe level of depressive symptoms. Also, Aiken, Clarke, Sloane, Sochalski, & Silber (2002) found that "each additional patient per nurse was associated with a 23% increase in the nurses' odds of burnout and a 15% increase in the odds of job dissatisfaction" (p. 1987).

Behaviorally, turnover is considered one of the ultimate and the most dangerous consequences of role discrepancy. Because nurses, in their daily work, can not change the situation within their work environment, simply, some of them might choose to leave it. The results are those sky-rocketing rates of turnover that are documented in many countries worldwide. In USA, the Joint Commission of Accreditation of Health Organization (JCAHO) (2002) reported that the turnover rate among RNs ranged from 18-26%. Also, in the UK, Buchan & O'May (1998) stated that the turnover rates among nurses have increased to 20%.

Definitely, patients are the most affected group by both the psychological and behavioral consequences of the nurses' role discrepancy. It is known that the high turnover rates of the nurses will increase the patients-to-nurse ratio, which is not safe for the patients. For instance, Aiken et al. (2002) reported that "each additional patient per nurse was associated with a 7% increase in the likelihood of dying within 30 days of admission, and a 7% increase in the odds of failure-to-rescue" (p. 1987). Moreover, according to Mrayyan (2006), distraction away from their patients, failure to provide the holistic care that patients deserve, and, instead, providing lower quality of nursing

care are examples of how patients can be affected by the dissatisfied nurses. In addition, the decreased times for patient's education and for formulating patient care plans are considered as a result for the nurses' high workload (Black, 2002).

Health care institutions are also affected by the problem of the increased turnover rates among the RNs. Financially, the replacement of the leaving nurses is very costly especially if we considered that nurses are the largest sector in each health care institution. For example, Strachota, Normandin, O'Brien, Clary, & Krukow (2003) estimated that the replacement of one medical-surgical nurse will cost a hospital approximately $42,000, while the replacement of one specialty nurse will cost a hospital approximately $62,000. Also, the Advisory Board Company (2000; cited in O'brien-Pallas et al., 2006) estimated that if a 500-bed hospital reduced nursing turnover only from 13% to 10%, the annual saving can amount to $800,000. If we considered that those numbers are more than 8 years old, and if we included the indirect costs of the increased nursing turnover rates, this would justify the voices calling for the increased emphasis on both the nursing retention strategies and the healthy work environment for nurses.

While the majority of the hospitals are focusing on the recruitment process, the need is for the healthy work environments through both recruitment and retention processes. To help reducing the problem of nursing workforce shortage, O'Brien-Pallas et al. (2006) stressed on considering nursing turnover as "a health human resource issue within the context of health environments where nursing shortages are growing" (p. 169). Also, we need to closely monitor the nursing work environment through investigating how healthy are those environments, and strongly support nurses' participation in the health care workforces. So, this study comes as a trial to help exploring the nursing working environment, and as a response to the

recommendations of Takase et al. (2006b) who raised the need for further studies to address role discrepancy and its psychological and behavioral consequences. However, there is a limited literature regarding the role discrepancy and its consequences among the RNs especially in the developing countries.

Role Discrepancy

According to Taylor, Westcott, & Barlett (2001), roles define the way individuals are acting through the internalization of certain values and norms, and through the anticipation in social actions among other preferences. The role of nurses is unique as it holds them accountable for both themselves and their patients through providing a quality care to the patients, and collaborating with other health care professionals (Wykle, 1981). The concept of role discrepancy was first appeared in literature by Corwin (1960; cited in Talotta, 1990) who described it as the impractical perception of an ideal conception of a role. Also, Corwin differentiated between the bureaucratic role that focuses on hospital loyalty and adherence to the rules, and the professional role that focuses on autonomy and decision making. Black (2002) stated that "as nurses try to adapt a bureaucratic role and still embrace a professional role, role conflict may occur" (p. 3). As a result of this role conflict, a professional role discrepancy may occur.

Role discrepancy is defined, among nurses, as "the incongruence between nurses' ideal roles and the roles they actually engage in at work" (Takase, Maude, & Manias, 2006c p. 752). It occurs because nursing education at nursing schools is producing nurses with advanced professional responsibilities and expectations (e.g., holistic care, caring approaches according to patients' needs) that are inapplicable in the actual working fields of nurses due to many reasons such as organizational policies, work load, conflicts with other health care professionals (Yung, 1996).

Role discrepancy is a serious problem because it was found to contribute to nurses' intention to leave either their nursing positions or profession (Takase et al., 2006b). Also, Wykle (1981) reported that the incongruence in role conception has led to a gap among practicing RNs, and increased the dissatisfaction among the beginning RNs. The process of how role discrepancy affects nurses' behaviors can be understood through exploring the illustration of Dawis & Lofquist (1984), which assumed that people are in a continuous negotiation with their work environment to achieve adjustment during the period of their employment. While negotiating, they will either adjust themselves to the environment, adjust the environment to become more compatible to their needs, or leave their environment seeking a more congruent work environment.

In nursing, we wish to be able to change or modify the work environment to be compatible for nurses. Unfortunately, this is not applicable due to many reasons such as work load, lack of administrative power, and the policies of cost containment. So, nurses' choices are limited to either leaving the environment or adjusting themselves to the environment, which means that nurses will abandon a lot of their preferences.

The incompatibility between the RNs and the conditions of their work environment constitutes a source of stress that might lead to both psychological and behavioral consequences that are reflected in the forms of burnout, dissatisfaction, and increased intention to leave the profession. Surveying more than 43,000 nurses in the USA, Canada, England, Scotland and Germany, Aiken et al. (2002) indicated that nurses reported both the decreased standards of care and the high levels of nurses' burn out and dissatisfaction. Also, Sochalski (2002) reported that one of each three

nurses practicing in acute hospitals has reported being dissatisfied with such employment.

The experience of role discrepancy varies because work experience differs from one work place to another (French, Rodger, & Cobb, 1974). So, if the work environment is causing more stress and becoming more complicated and does not offer the nurses with their professional and personal needs, we can expect a higher role discrepancy and suffering among nurses at that environment. This can be applied to the ICU that is considered to be an extremely stressful environment for the RNs and the other health care professionals (Chan & Huak, 2004; Goodfellow, Varnam, Rees, & Shelly, 1997). The ICU is known with both the higher workload per patient along with the higher mortality rates.

Role discrepancy among RNs has been studied only in the USA and Australia. However, still, little is known regarding this concept among the RNs. Also, it was studied in relation to the turnover intention among nurses in different hospital settings with no studies with this regard in Jordan. Also, no studies described role discrepancy and its psychological and behavioral consequences specifically among ICU nurses. Takase et al. (2006b) stated that further studies are needed in other countries and in different hospital settings. Also, up to our knowledge, very few are the studies that have been conducted in Jordan regarding both depressive symptoms and turnover intention among the ICU nurses. So, this study will be the first to address role discrepancy among Jordanian the ICU nurses, and will be the first to correlate role discrepancy to both the psychological and behavioral consequences.

To support the nursing workforce internationally, and specifically in Jordan, the problem of high turnover rates needs to be seriously considered seeking solutions for this major nursing workforce issue. Therefore, by conducting such a study in the

nursing field to address the problem of role discrepancy among the ICU nurses, the researcher is hoping to contribute to the nursing body of knowledge, and to identify the psychological and behavioral consequences on nurses. The results of this study can be used to enhance the nurses' psychological status, and to decrease their intention to leave neither their nursing positions nor their nursing profession.

Significance

According to O'Brien-Pallas et al. (2006), the nursing shortage should be considered as a "global problem" (p. 170). In order to solve this problem, the underlying causes need to be investigated. The US-GAO (2001a) gave us a hint of those causes; the aging of the nursing workforce and the high rates of nurses' job dissatisfaction. Both causes are related to the stressful work environment within which nurses are functioning. So, working on the environment, and trying to manipulate it toward being more convenient to nurses could have the potential to encourage new nurses to get in to the profession, as well as to increase the satisfaction of the current nurses and retain them in the profession, which will, eventually, alleviate some of the consequences of the nursing shortage.

The required work environment should include the balance between the job requirements and the needs of the workers (compensation, social support, and self actualization). Without these needs being fulfilled, the work environment would constitute a stress that would make the nurses think about leaving either their profession or their positions. In order to get the work environment compatible with nurses' needs, nursing research studies are needed to more fully explore nurses' environmental work conditions and nurses' perception regarding those conditions. By doing so, we can have a better view of the general situation, and can develop general

recommendations for the health care policy makers and nursing administrators regarding the ultimate solutions for the problem of nursing shortage.

This study is within that scope of efforts to explore one side of the work environment, which is the role of nurses. Nurses need to feel appreciated in terms of their work and their role. Also, they do not want the humiliation associated with doing tasks that are not included within their job description. This role conflict (professional role discrepancy) will be the focus of this study. Takase et al. (2006b) stated that more research is needed to address the problem of role discrepancy among the RNs in different countries and in different hospital settings.

For nurses, investigating workplace variables is very important to identify nurses' decisions regarding their positional and professional turnover decisions. Also, it can help in identifying the causes of stress within nursing work environment especially in an extremely stressful environment like the ICU. This can help in decreasing the growing rates of RNs' turnover, and alleviating some of the stress RNs are encountering within their work environment. By doing do, we can provide insights to the administrative and organizational approaches to retain RNs within their institutions. However, it is important to mention that the literature suggests that retention strategies have the potential to decrease the sky-rocketing rates of nursing turnover by modifying nursing work environment.

Patients, on the other side, can benefit from the satisfied nurses through receiving a better quality of nursing care. Also, this will impose less risk on them through decreasing the nursing errors, devoting more time for formulating the individualized nursing care plans, and enhancing the patient-nurse relationship, which will be reflected on the rates of patients' satisfaction.

Smaller countries, like Jordan, are more susceptible to the inability to retain nurses due to the lack of resources, which constitutes a critical issue affecting the viability of the health services (Hughes, Finlayson, & Firkin, 2005). In addition, the nature of nursing education, in Jordan, has significantly changed with the increased number of nursing schools in both the governmental and the private universities. The number of nursing schools has increased from four schools in 1997 to eight schools in 2007 (Abualrub, 2007). Because role discrepancy can be caused by the nursing education (Yung, 1996), there is a need to examine the outcomes of the current education system with different outcome variables in which role discrepancy is one of them. Indeed, there have been no published research studies regarding role discrepancy among the RNs in Jordan.

Another evidence to support the need of such studies is concerning the health care system in Jordan, which continued to grow tremendously in the last two decades as Jordan is becoming "a referral medical station for clients in the Middle East, especially the Arab Gulf countries" (Mrayyan, 2007 p. 83). At the same time, the problem of shortage among the RNs has become both a workforce and public health issue as the surveys of patients' satisfaction with nursing care indicating low satisfaction rates compared to other countries (Alasad & Ahmad, 2003). Also, it is known that factors affecting nurses' retention and causing the shortage have been studied in countries other than Jordan. Nevertheless, Abualrub (2007) stated that those factors are needed to be studied in Jordan "to bridge any gap caused by cultural, social, and economic differences" (p. 119).

Finally, the reported levels of nursing shortage, the high rates of turnover among nursing workforces, and the poor nurses' job satisfaction rates, along with the risk that is imposed by those problems on patients' care are making it a necessity for

nursing researchers to more fully explore those problems, and try to find the ultimate solutions. Studies such as this may have the potential benefits for nurses, nursing profession, patients, and the health care institutions. Also, it could serve as a foundation for other studies in different countries concerning role discrepancy to build on its results.

Conceptual Framework

Up to our knowledge, there is no specific nursing theory that focuses on the nurses' role conception and role conflict. Nursing theories in this arena, such as Neuman's system model (1995) and Roy's adaptation model (1970), tend to consider nurses as individuals who are affected by their environment without focusing on the role of the nurses. However, nursing researchers who are concerned with the role of the nurses adopted theories from outside disciplines such as psychology and sociology in order to guide their studies. For instance, Black (2002) and Joslin (1991) used the role theory (Parson, 1966), and Takase et al. (2006b) who used the person-environment fit theory.

Among the theories that were considered to guide this study was the demand-control model (Karasek, 1979), which postulates that psychological strain is a result of both the demands of work situation and the range of decision making freedom (discretion) available to the worker facing those demands. According to the model, the stress occurs when control over employees' work is low and the psychological demand is high. The model was extended by Karasek & Theorell (1990) by proposing that the low social support, job insecurity, and the high physical exertion to cause psychological stress and physical illnesses.

This model was excluded because it does not consider nurses' own interpretation and judgment regarding their own environment within the profession,

which means to treat all nurses as if they are having one way of valuing the work environment and with same intensity. According to Takase, Maude, & Manias (2005):

> What has been missing in the past nursing studies is the consideration of how much nurses seek these environmental characteristics to satisfy their professional needs, to compare nurses' needs with their perception of the environment, and to see how this comparison affects nurses' job satisfaction and turnover intention (p. 210).

Another reason for excluding this model was that it did not consider that too little job complexity may also be a problem for the nurses, as it can prevent them from gaining a sense of competence and the esteem of others because the work lacks challenge and meaning (Vachon, 1987). In addition, this model was found unhelpful for identifying the major concept of this study that is "role discrepancy", which contains a comparison in its nature. Finally the concepts of physical workload, social support and decision latitude are beyond the concern of this study.

Other versions of the demand-control model were considered as (a) the theoretical model of antecedents and consequences of depression (Baba, Galperin, & Lituchy, 1999), which suggests that job characteristics like role overload, role conflict, decision latitude, and social support contribute to stress variously, which, in turn, can lead to burnout and depressive symptoms resulting in withdrawal cognitions as absenteeism and turnover intention; and (b) the model of job stress by the National Institute of Occupational Safety and Health (NIOSH) (1999), which postulates that "exposure to stressful working conditions can have a direct influence on workers safety and health" (p. 8). Also, the NIOSH model suggests that "individual and other situational factors can intervene to strengthen or weaken this influence" (p. 8). Those two models were excluded due to the same above mentioned reasons.

Neuman's system model (1995) was also considered. Her model identified the individual client as a system who is subject to the impact of different levels of environmental stressors (intra-, inter-, and extra-personal). Also, the model classified the environment to internal, external and created environment. The model is based on 10 major assumptions of uniqueness of the system, existence of different kinds of stressors, existence of normal lines of defense and their break through by the stressors, wellness as a continuum of available energy to support the system stability, existence of lines of resistance to return the system to the usual wellness state, existence of three levels of prevention, and the system-environment dynamic and constant energy exchange. Although it is mentioned that the model can be applied to nursing at individual, organizational, and nursing levels, this model was found to be too complex to guide this study, which means that variables representing the different types of stressors from different levels of environment are beyond the scope of this study. Also, the person-environment fit theory was found to focus more on the congruence between the nurses and their work environment.

Another theory that was considered is the role theory (Parson, 1966), which focused on the role conflict. According to the role theory, role conflict is "the exposure of the actor to conflicting sets of legitimized role expectations such that complete fulfillment of both is realistically impossible" (p. 275-276). This conflict constitutes a source of stress and frustration among the RNs because of the incompatibility between integration of the personality and the system. Even though the role theory looks beneficial to guide this study, the person-environment fit theory was found to fit more within that purpose because it is concerned more about the perception of the persons (RNs) regarding their roles within their work environment.

The conceptual framework of this study is based on the person-environment fit theory (French et al., 1974), which is concerned with the relationship between the persons (e.g., nurses, employees) and their environment, and how the degree of the fit/ congruence between them affects their occupational behaviors. The authors proposed that a misfit between the persons and their work environment "will be associated with psychological strain and with the probability of various coping and defensive behaviors" (p. 319). In another word, their occupational performance will be affected in terms of psychological and behavioral manifestations.

The concepts of interest within this study are related to the concepts of the above mentioned proposition of the theory as the following: (a) role discrepancy constituted a state of misfit between the RNs and their work environment (ideal vs. actual), (b) depressive symptoms were considered among the most common symptoms among the psychological manifestations of the role discrepancy, and (c) turnover intention was considered one of the ultimate and the most dangerous behavior among the behavioral manifestations of the role discrepancy (Figure 1).

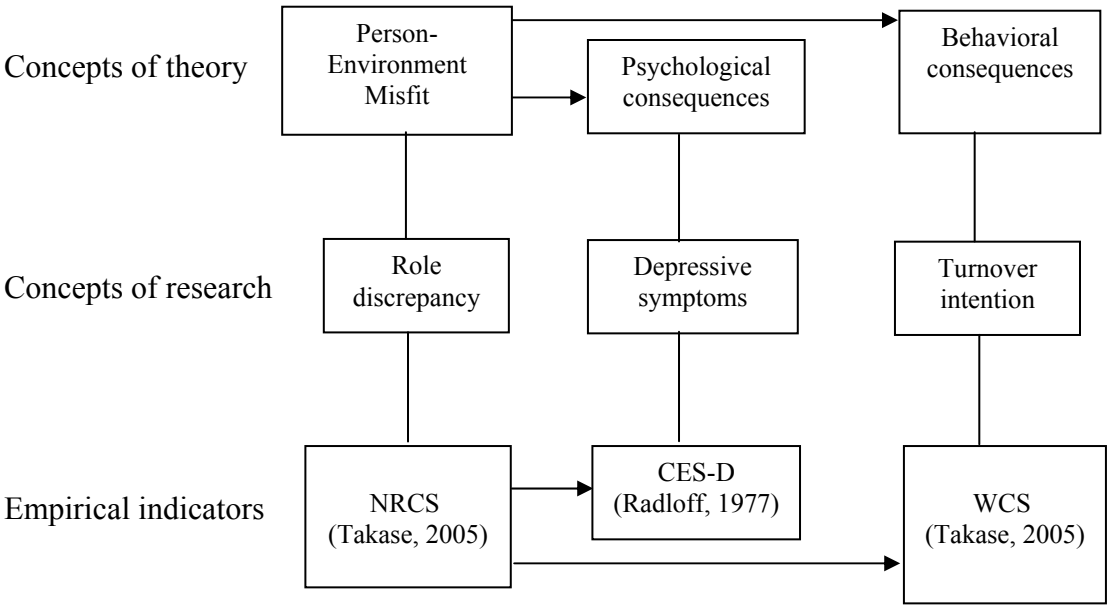

Figure 1. Theoretical framework of the study.

According to Wykle (1981), the principle of person-environment interaction was addressed by many scientists in the field of psychology in order to explain the changes in the individuals' behaviors, with their emphasis was on the importance of assessing individuals' views of their world before trying to change their behaviors. Also, Vachon (1987) considered this model as a useful way to approach occupational stress because "it looks at the fact that job satisfaction [as a behavioral outcome] and occupational stress as a result of the interaction between the person holding a particular job and the environment in which he or she is employed" (p. 5). Moreover, using the person-environment fit model, Harrison (1979) identified job stress as "A job is stressful to the extent that it does not provide supplies to meet the individuals' motives, and to the extent that the ability of the individual falls below the demands of the job which are prerequisites to receiving supplies" (p. 178).

According to French et al. (1974), curvilinearity is a core concept within the person-environment fit model, which means that the relationship between a perceived deficiency for particular supply or ability, represented by role discrepancy in this study, and various dependent variables, represented by depressive symptoms and turnover intention in this study, will tend to be curvilinear, which means that "excesses of supplies (either too much environmental supply to meet a need or too much ability to meet an environmental demand) are not expected to have any direct effects on such variables" (p. 319). This curvilinearity requires two conditions. First, the measures of the person and his environment are commensurate, which means both deals with a single dimension. Second, the dependent variable is related to person-environment fit on a large number of supplies. Both conditions are applicable for this study, which permits the usage of this theory to guide this study.

This study is going to focus on the relationships of role discrepancy with its psychological and behavioral consequences (represented by depressive symptoms and turnover intention) among ICU RNs in Jordan. It is expected that the results of this study will stress that the increased incongruence between the RNs and their work environment in the ICU (represented by role discrepancy) is associated with both high levels of depressive symptoms and turnover intention (Figure. 2). If that is the case, nursing administrators need to get both nurses and their work environment compatible to each other so that better outcomes can be achieved for patients, nurses, nursing profession, and health care organizations.

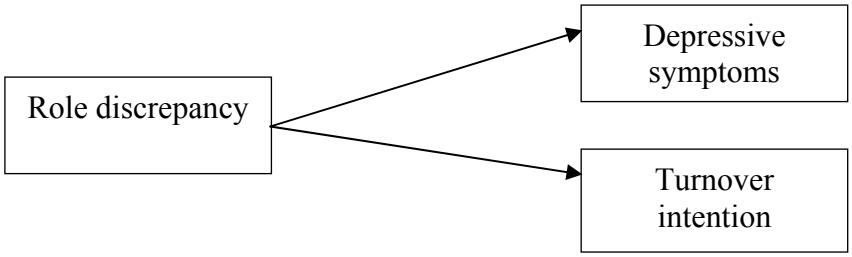

Figure 2. Model of the study

Mitchell, Holtom, Lee, & Erez (2001) defined the person-environment fit as an employee's perceived compatibility or comfort with an organizational environment, which occurs when there is a harmonious relationship between personal needs and environmental characteristics. On the other hand, Harrison (1979) defined the misfit as the incongruence between the employees' motives and their job supplies, which can occur if the job does not provide enough supplies to meet the individual motives or if the abilities of the person fall below the demands of the job.

The occupational behaviors include occupational performance, job satisfaction, and intention to leave the position or the profession (Dawis & Lofquist, 1984). When the employees perceive the misfit, they experience dissatisfaction and will have the intention to leave their positions or even their profession looking for a

more convenient job. On the other hand, RNs' experience of psychological symptoms varies. While Vachon (1987) reported that the developing the depressive symptoms constitutes one of the greatest psychological manifestations of work stress across all health professionals, McCleave (1993) stated that RNs are usually not clinically depressed but, rather, typically manifest symptoms of depression.

Theoretical Assumptions (French et al., 1974)

1. The fit occurs as compatibility between the characteristics of the person and the properties of the environment.
2. The misfit between the person and the environment will be associated with psychological strain and defensive behaviors.
3. Overload is directly stressful; however, under-load with respect to any ability often indicates a deficiency on another dimension.

Study Assumptions

1. The relationship between nurses' ideal role conception, their actual nursing role, and their turnover intention is curvilinear.
2. The relationship between nurses' ideal role conception, their actual nursing role, and their reported level of depressive symptoms is curvilinear.
3. The person-job fit contributes to low turnover intention among RNs.
4. The person-job fit contributes to low level of depressive symptoms among RNs.

Research Questions

1. Do Jordanian ICU RNs perceive discrepancy between their ideal and actual roles?
2. How much of the variance in the Jordanian ICU RNs' turnover intention is explained by role discrepancy?

3. How much of the variance in the Jordanian ICU RNs' depressive symptoms is explained by role discrepancy?

Theoretical Definitions

- Role discrepancy is defined as "the incompatibility between the roles nurses desire and expected to take and the roles they actually engage in at work." (Takase et al., 2006b p. 1072).
- Depressive symptom is defined as "a broad continuum of changes in the affective state, ranging from the normal mood fluctuation of everyday life to a severe, and even, psychotic melancholia" (Kupfer & frank, 1981 p. 9).
- Turnover intention is the "attitudinal (thinking of quitting), decisional (intention to leave), and behavioral (searching for new job) processes proceeding voluntary turnover" (Takase, 2005 p. 14-15).

In summary, the numbers of RNs who are leaving the profession are increasing every year, as well as the numbers of RNs who are having higher levels of depressive symptoms. However, very few are the studies that examined both the psychological status of the nurses along with their behavioral actions. Also, little are the studies that have examined the role discrepancy as a leading cause for turnover intention and depressive symptoms among RNs, and no studies have correlated both concepts to the role discrepancy as this study is intended to do. So, this study is intended to be an essential step to further understand how role discrepancy affects nurses' psychological status and behavioral responses.

Chapter Two

Review of Literature

The purposes of this study were (a) to describe the concepts of role discrepancy, depressive symptoms, and turnover intention among the ICU registered nurses in Jordan; and (b) to examine the relationship of role discrepancy with both nurses' depressive symptoms and their turnover intention. This chapter reviews the conceptual and empirical literature regarding role discrepancy, depressive symptoms, and turnover intention among RNs. Research studies related to these concepts are reviewed, and the gaps in the literature are addressed.

The chapter starts with the discussion regarding the problem of global shortage of nursing workforce and the problem of the increased rates of turnover among nurses. Then, the chapter proceeds to the discussion of the stressfulness of the work environment for the nurses, in general, and for the ICU nurses in specific, as a leading cause for turnover; and the role discrepancy as a source of stress among the nurses, along with an overview of the problem among the Jordanian nurses. A description of the person-environment fit theory, which was used to guide this study, is also included within this chapter. Finally, a description of the related control variables (age, gender, level of education, income, number of night shifts, and years of professional and positional experience) will be addressed.

Nursing Workforce

According to the WHO (2007), the nursing workforce constitutes the largest percentage of the health care workforces in almost every country with 2.6 million nurses in the USA, 1 million nurses in Japan, and more than 16,000 RNs in Jordan. However, this rank of being the largest group among the health care professionals is

not secured anymore as the numbers of the forces being under threat to deplete with a challenge to nurses' ability to meet their patients' needs (Bauman, 2007; Scott, 2001).

"A global problem", this is how the problem of shortage among the nursing workforce should be considered (O'Brien-Pallas et al., 2006 p. 170). The International Council of Nurses (ICN) was even more pessimistic in describing the situation of nursing shortage by stating that "we are immersed in a global nursing workforce crisis-one marked by a critical shortage of nurses" (Bauman, 2007 p.1). This nursing workforce shortage was previously addressed by the WHO (2002) as a major part of the imbalance in the health care workforce.

Exploration of the situation of nursing workforce shortage worldwide revealed critical numbers, which requested serious interventions in order to alleviate some of the consequences of the problem. For instance, in Australia, the government reported an expected number for the shortage among the RNs of more than 30,000 nurses (Nursing Education Review, 2002). In the USA, surveys of the care providers indicated increasing RNs vacancy rates, and growing difficulty recruiting nurses (US-GAO, 2001b). This shortage was felt by the nurses themselves, as well as other care providers within the health care industry. Buerhaus et al. (2007) surveyed health care providers regarding the nursing shortage, and found that 82% of the nurses, 81% of the physicians, 68% of the hospitals' chief executive officers, and 74% of the chief nursing officers perceived that there is a shortage among nurses in the hospitals where they are working.

The future is not expected to be of any better as it is expected that by 2010, we will not have enough RNs to fill out the required job vacancies that will be available (US-GAO, 2001b). The same situation was expected by Scott (2001) who stated that, by 2010, the national shortage of nurses in all skill areas will put the nursing

workforce in a critical situation. Within the same stream of expecting the worst in the future, the ANA (2002) expected the current nursing workforce shortage to worsen in the coming two decades due to the aging of the working nurses and more nurses retiring. Also, Buerhaus et al. (2007) stated that due to many capacity constraints among the nursing education programs such as shortage of the nursing faculty, the long-run supply of RNs is not expected to fill out the shortage among them.

The consequences of the nursing shortage can be harmful because of its ability to affect both the quality of patient care and the safety of both nurses and their patients. Scott (2001) summarized those consequences to include; increased rates of morbidity and mortality of the patients, failure to alleviate conditions that cause pain and disability, less productive workforce, and poor cost containment. Moreover, the health care professionals surveyed by Buerhaus et al. (2007) believed that the nursing shortage has negatively impacted the indicators of health care delivery process, hospitals' capacity to provide services, and nurses' ability to provide quality patient care. In the developing countries, the nursing shortage is even worse due to the external immigration of nurses in search of better work conditions and quality of life, accompanied by the unemployment and underemployment of nurses because of financial constraints (Bauman, 2007).

According to the literature, the reasons for this nursing workforce shortage can be summarized in to two main reasons: (a) the aging of the nursing workforce, and (b) the dissatisfaction of the nurses with their working conditions. The later was known to increase the rates of turnover among nurses, and to discourage the new nursing graduates from enrolling in to the nursing profession (US-GAO, 2001a). The following is a description of those two reasons.

The problem of the aging of the nursing workforce is indirectly related to the topic of this study (role discrepancy), but focusing some light on it can give more insight to the problem of nursing shortage, and help to strengthen the calls for immediate interventions to solve this problem. Buerhaus et al. (2000) found that 60% of the RNs in the USA were over the age of 40, and that the percentage of the young nurses (younger than the age of 30) had fallen by nearly 40% since 1980. Also, in the state of California, over 50% of the nurses in practice were found to be over 50 years old (Cofffman et al., 2001).

The other side of this problem can be seen by exploring the declining rates of enrollment in to the nursing programs. The US-GAO (2001b) reported a 19% decline in the enrollment of students in to the nursing baccalaureate programs, and a decline of 23% in the number of nurses passing the national registered nursing licensing exams between 1996 and 2000, which means that some of the nurses who graduate with a baccalaureate degree do not get in to the profession, which intensifies both problems of aging and shortage of nursing workforce. More dangerously, it is reported that the next generation is having a shift in their values and images of nursing as a profession, which makes them look to nursing profession as inconsistent to their desires and ambitions (Coffman et al., 2001). If that is true, we have to wait for another generation in our effort to solve the problem of nursing shortage and its consequences.

Concerning the other reason identified by the US-GAO (i. e. nurses' job dissatisfaction), it was identified as of valuable importance to understand why nursing workforce is continuously suffering from shortage (Aiken et al., 2001). Job dissatisfaction was considered as the ultimate factor to contribute to the problem of shortage among RNs by contributing to both recruiting and retaining nurses (US-

GAO, 2001a). However, the reported levels of dissatisfaction among RNs are shocking, and they should be alarming to the health care administrators for immediate actions to be taken.

Aiken et al. (2001) investigated nurses' job satisfaction in a survey that included 43,000 nurses and more than 700 hospitals in five countries in the period between 1998 and 1999. Even though the surveyed countries are considered among the top of the developed countries that have different advanced health care systems (USA, Canada, England, Scotland, and Germany), nurses reported the common shortcomings in their work environments and the quality of hospital care. The results revealed the following dreadful percentages of dissatisfaction among nurses; 41% in the USA, 32.9% in Canada, 36.1% in England, 37.7% in Scotland, and 16.6% in Germany. Now, if this was the case in those developed countries, we can imagine what the case within the developing countries is. Again, these numbers are certifying that the problem of nursing dissatisfaction is global. Also, they confirm that unless serious interventions are taken, the dissatisfaction rates among nurses will continue to grow up causing the rates of nurses' turnover to shoot up as turnover is the ultimate and the most dangerous consequence of the job dissatisfaction.

Workforce Turnover

Leaving the nursing position, or even the nursing profession, is considered as the last solution for the dissatisfied nurses who are unable to change their environment, and feel that they are no longer able to tolerate working in such stressful environment (Dawis & Lofquist, 1984). Like the figures of nursing shortage and dissatisfaction, the sky-rocketing nurses' turnover rates are globally documented in the literature. The JCAHO (2002) reported that turnover rate among nurses in the USA

ranged from 18 to 26%. In Jordan, Mrayyan (2006) reported that the annual turnover rate among the Jordanian RNs was 18.4%.

The global nature of the high nurses' turnover rates can be clearly observed in the survey conducted by Aiken et al. (2001). They found that the percentages of nurses who are planning to leave the profession were as the following; 22.7% in the USA, 16.6% in Canada, 38.9% in England, 30.3% in Scotland, and 16.7% in Germany. The most shocking rates were the rates of turnover intention among the nurses who were younger than 30 years of age, which were as the following; 33% in USA, 29.4% in Canada, 53.7% in England, 46% in Scotland, and 26.5% in Germany. The authors concluded that nursing workforce is at a serious risk of losing one of five nurses for reasons other than retirement, with a higher intention to leave the profession among the younger nurses.

The above mentioned figures are pointing to the fact that research studies are needed to investigate the reasons of dissatisfaction among RNs, and to explore their intention to leave either their positions or their profession. Without serious and sincere actions, we will continue having the problem of severe shortage among the nursing workforce as we are having aging nurses who will retire soon, and young nurses who strongly think about leaving their profession.

Several studies have been conducted to investigate the factors that lead to the high nurses' turnover intention and the low job satisfaction. Aiken et al. (2002) conducted a survey that included more than 10,000 nurses in a trial to investigate the relationship of patient-to-nurse ratio with nurses' reported turnover intention. The survey revealed that "each additional patient per nurse was associated with a 23% increase in the odds of burnout, and a 15% increase in the odds of job dissatisfaction" (p. 1987). In Australia, mandating a maximum patent-to-nurse ratio was noticed to be

effective in increasing the number of the nursing workforce, which convinced 5,000 unemployed nurses to apply to return back to a nursing work (Kingma, 2006). Moreover, the Australian Nursing Federation reported that more than 50% of the nurses in that area would resign, retire early, or reduce their working hours if that mandated ratio was abolished.

Another study was conducted by Cartledge (2001) who used the exploratory approach in order to explore the factors predisposing to nurses' turnover intention. The results revealed four dominant themes: Stress related to the work, inadequate opportunity for professional development, lack of recognition and respect of others, and implications of shift work.

Within the same efforts, Hart (2005) tried to explore a different aspect of the nursing work environment investigating the hospital ethical climate, defined as "the organizational conditions and practices that affect the way difficult patient care problems, with ethical implications, are discussed and decided" (p.174), and its relationship with positional and professional turnover intention among the nurses. The author found the hospital ethical climate to explain 25.4% and 14.7% of the variance in positional turnover intention and professional turnover intention, respectively. Within the same study, other variables were found helpful in explaining the nurses' turnover intention such as patient load (higher load leads to higher turnover intention), control over practice (more control leads to lower turnover intention), and years of experience (longer years of experience lead to lower turnover intention).

Another study by Takase Maude, & Manias (2006a) investigated the nurses' perceived public image versus nurses' self image as a factor that might contribute to the nurses' decision to leave either their positions or their profession. The authors concluded that in order to improve nurses' job performance, and reduce their turnover

intention, it is important to enhance both the public image and the self-image of nurses.

Among the other nursing discrepancies that have been studied in this field was the nurses' role discrepancy, which was studied by Takase et al. (2006b) who defined role discrepancy as "the incompatibility between the roles nurses desire and expect to take, and the roles they actually engage in at work" (p.1071). The authors found role discrepancy to partially contribute to nurses' positional and professional turnover decisions. Role discrepancy was investigated by other research studies that will be discussed within the role discrepancy section.

For both studies (Takase et al., 2006a, b), the person-environment fit theory (French et al., 1974) was used, which refers to the perceived compatibility between the characteristics of both employees (nurses) and their work environment. The reason behind using such a theory is the belief that there is a need to conduct studies that include the examination of the environmental characteristics and nurses' needs at the same time (Takase, 2005).

That said, it is clear that nursing workforce is under a serious risk of losing part of its constituents while fewer numbers of new nurses are joining the profession. The reasons varied, but the majority of the literature has raised the nurses' dissatisfaction with work conditions as a major factor. This dissatisfaction has increased the numbers of nurses who are leaving the profession, and has decreased the number of the new nurses.

Literature of the nursing work environment and nurses' job dissatisfaction was found to be concentrating on the western countries. However, this does not mean that the eastern countries are not suffering from the consequences of this problem. Rather, this might indicate that the eastern countries are suffering more because many of their

nurses are migrating to the western countries looking for better work conditions and better salaries. At the same time, this points to a gap in the literature that needs to be fulfilled. Also, it is noticed that, generally, literature has treated nurses passively by disregarding their opinions regarding their job conditions.

Finally, due to the sensitivity of the issue of nursing shortage and turnover, alternatives of research methods were limited to; exploratory approaches using alternation between the correlational and comparative approaches, and qualitative approach based on the belief to grant nurses with the chance to express their feelings toward their work conditions. However, those methods were not enough because the need is for more interventional studies that apply certain retention strategies, and assess its impact in keeping nurses within their positions. Unfortunately, this is beyond the objectives of this study due to the time constrains, but still can be planned for future studies.

Effects of Nursing Workforce Shortage

Patients' cost

The start point was with patients because it is known that they are the core of the caring process that every health care institution is established for. Also, nurses work around the clock, and they constitute the first line for discovering and acting immediately in case of any patients' conditions deterioration. So, patients are the most affected group with the problems of nursing shortage and nurses' turnover.

To start with, it is known that the nursing shortage will be compensated at the hospitals by increasing the patient-to- nurse ratio. This increment of ratio is not safe on patients' outcomes. Aiken et al. (2002) explored the effects of increasing this ratio on patients' outcomes such as mortality. They found that "each additional patient per nurse was associated with a 7% increase in the likelihood of dying within 30 days of

admission, and a 7% increase in the odds of failure-to-rescue' (p. 1987). Within the same study, the authors concluded that if the patient-to-nurse ratio in all hospitals was increased from four to six patients per nurse, additional 2.3 deaths would be expected per 1,000 general patients, and additional 8.7 deaths would be expected per 1,000 complicated patients.

The physical manifestations are not the only consequences that are expected on patients' side. Their hospital admission experiences can be completely different and more satisfying for them. Mrayyan (2006) conducted a correlational study between the scores of nurses' job satisfaction and the scores of patients' satisfaction, which were found to be significantly correlated ($r = .29$, $p < .01$). Also, the same study found the scores of the quality of nursing care to be significantly correlated with the scores of patients' satisfaction. Within the same stream, Alasad & Ahmad (2003) assessed Jordanian patients' satisfaction with nursing care, and found that patients were least satisfied with the amount and type of information they received regarding their condition and treatment.

Losing the positive health outcomes constitutes another side of the consequences of nursing shortage on the patients' side. Literature found the high nurses' skill mix and the more nurses' hours spent with patients to be associated with fewer falls and greater satisfaction with pain management (Sovie & Jawad, 2001), lower death rates in patients with acute myocardial infarction (Person et al., 2004), and with lower incidence of medication errors and pressure ulcers (Blegan, Goode, & Reed, 1998).

Institutional cost

Health institutions, mainly hospitals, are widely affected by the nursing shortage and the nurses' turnover. O'Brien-Pallas et al. (2006) conducted a survey

including 4 countries (Australia, Canada, New Zealand, and USA) to determine the direct and indirect costs associated with nurses' turnover rates. The study found the average cost of turnover per nurse to be $21,514. Also, they reported that the highest direct cost was found to be the temporary replacement of the leaving nurses, and the highest indirect cost was found to be the decreased initial productivity of the new hired nurses. Moreover, the Advisory Board Company (2000) estimated that the actual cost of the nursing turnover is four to five times greater than that typically accounted for by hospitals. Also, the Board concluded that a 500-bed hospital can save up to $800,000 by reducing the nurses' turnover only from 13% to 10%. Finally, the Board classified the costs of nurses' turnover into direct costs (21%) and indirect costs to (79%).

Nurses' cost

Nurses are also affected by the nursing shortage as the remaining nurses will be asked to compensate for the shortage, and to keep the quality care to their patients. Usually, this compensation happens by increasing the patient-to-nurse ratio. As this increment in the ratio is not safe for the patients, it is not safe for the nurses themselves. Aiken et al. (2002) reported that "each additional patient per nurse was associated with a 23% increase in the odds of burnout" (p.1987). Also, this unhealthy work environment may affect nurses' health physically and psychologically through the stress of heavy workloads, long hours, and a variety of workplace hazards (Bauman, 2007). Due to the importance of the work environment for understanding the shortage among nurses, the next section is devoted for the discussion of the different aspects of the stressful nursing work environment

It is obvious that the cost of nursing workforce shortage and turnover is severe on the side of all components of the process of nursing care; patients, nurses, and

hospitals. More research studies are required in this field to explore the effect of this phenomenon because most of people can not be convinced without those big figures. The need for that kind of studies is higher in countries other than the western countries. Unfortunately, such studies are difficult to conduct due to the poor data systems, and due to the negligence of the indirect cost of losing nurses. However, studies like this can be considered within the efforts to assess the cost that nurses pay due to having stressful work environment in Jordan.

Work Environment and Stress

Chun & Huak (2004) identified the work environment to include the social and the psychological characteristics of the work setting, which are determined by the physical features, organizational policies, and the behavior of people at work. They classified work settings, according to their effects on the employees, in to 2 types: (1) Work settings that boost employees' morale and productivity, and (2) Work settings that lead to dissatisfaction, despair, rigidity and lack of clear direction leaving the employees to feel isolated, pressured and frustrated. The second work setting could lead to physical and emotional disorders such as anxiety and depressive symptoms. Considering that adult workers spend one-third to one-half of their waking life at work, what they face at their jobs might be a reason for their health and disease (House, 1980). Starting with this fact, we can understand why the stressful nursing work environment is believed to have such a huge contribution in to the problem of nursing shortage.

The stressful work environment is believed to weaken nurses' performance, increase their dissatisfaction, and drive them away from either their positions or their profession (Abualrub, 2007; Boumans, 2007; Cartledge, 2001; Takase et al., 2006b). Moreover, Peterson (2002) considered the work environment as the primary motivator

for employment choices made by the individual registered nurse, and concluded that without addressing the work environment, the strategies to address overall nursing workforce planning and the nursing shortage will be very difficult to be applied. A statement reported by Hart (2005) can summarize how stressful the situation of nursing work environment is. The statement said that "more than ever, nurses say that they are practicing in situations with a lack of congruency between individual patients' needs and demands of the organizations" (p. 173).

For more understanding of why the nurses encounter that considerable amount of stress, Eick (1978) summarized the reasons as following:

1. Nurses are required to interact with an assortment of people to coordinate many patient care services.
2. They are responsible for the direct care and comfort of the patients, and for the administration of many treatments ordered by physicians.
3. They are caring for sick and dying persons and performing tasks, which are, by ordinary standard, disgusting, distasteful, and frightening.
4. They must deal with patients' psychological and emotional needs, and assess and facilitate patients' abilities to cope with their illnesses.
5. They are the most likely people upon whom the patients will vent feelings of anger, anxiety, fear, and frustration as they are the most easily available.
6. They need to deal with their own stress such as feelings regarding their own job (e.g., rotating shifts, workload, understaffing).

That said, heavy workload, defined as "a lack of fit between the work demands of nurses and what they can reasonably provide" (Bauman, 2007 p.15), constitutes a threat to nurses' health and places their patients at risk. Baba et al. (1999) found that the heavy workload was significantly and positively correlated with the psychological

stress in a sample of Caribbean nurses. Literature is telling us about other physical stressors from the nurses' environment that has the potential to affect nurses. These stressor include (a) the physical injuries as found by Ahlberg-Hulten, Theorell, & Sigala (1995) that job strain increased the risk of low-back injuries among the Swedish nurses; and (b) the verbal and physical abuse, which were found by Celik, Celik, Agirbas, & Ugurluglu (2007) to be prevalent against the Turkish nurses with 91.1% and 33%, respectively, and against nurses working in Kuwait with 46% and 7%, respectively (Adib, Al-Shatti, Kamal, El-Gerges, & Al-Raqem)

Organizational policies play a major role in formulating the stressfulness of the nursing work environment. The managed care is an example of these policies (Coffman et al., 2001; Scott, 2001), which was applied as an effort to rationalize the health care system through reducing the length of stay in hospitals, and limiting the admissions for those who are at most need for health care. According to Coffman et al. (2001), the managed care increased the patients' level of illness, the level of activity within the hospital, the ethical decisions to be made, and the work that need to be done in a shorter time. This situation has produced nurses who are more stressed and less satisfied, and has deteriorated their nursing support system.

Psychologically, stress is a daily experience of the RNs, which is documented in many countries around the world. The Jordanian nurses reported the experience of traumatic events that they defined as personally stressful, which they were reminded of afterward. When they were asked about the most upsetting events, they reported the death of a child, threats or harassment from a superior, doctors, or supervisors, and the death or sickness of a family member (Jonsson & Halabi, 2006). Canadian nurses were not in a better shape than the Jordanians with this regard. Laposa, Alden, & Fullerton (2003) reported that 12% of the Canadian nurses met the full criteria for a

diagnosis of post traumatic stress disorder (PTSD). Also, in Singapore, Chan & Huak (2004) reported that nurses' scores of PTSD were significantly higher than the scores of physicians.

PTSD was not the only psychological consequence of the stressful nursing work environment that has been reported by nurses. Depressive symptoms are considered as the greatest psychological manifestation across all professional groups, including nurses (Vachon, 1987). Bennett et al. (2001) measured the depressive symptoms among the British nurses in the general wards using the Hospital Anxiety & Depression Scale. On a range of 0-21, nurses' mean score was 6.45 with 10% of them were more than the cut-off point of 11. Also, Su et al. (2007) explored the level of depressive symptoms among the Taiwanese nurses working in different kinds of wards including floors and units. They reported that, using the Beck Depression Scale, the percentage of the nurses whose scores were more than or equal to the cut point of 10, out of 63, for more than two weeks was 27.5%.

One more thing that needs to be discussed is that even though the above mentioned consequences are general for nurses in all settings, the intensity with which RNs are experiencing those consequences varies from unit to unit. In general, ICU was perceived by the sum of literature to be to be the most stressful nursing work environment (Chan & Huak, 2004; Goodfellow et al., 1997; Su et al., 2007). This explains why this study is going to be conducted in the intensive care settings. However, further discussion of this issue is in the next section.

Different studies have tried to explore the wildness of the nursing work environment. The truth is that no study can include all the aspects of that environment. However, having many studies focusing on different aspects can

formulate the whole picture that will be conveyed to the health administrators and policy makers. Also, the focus was on the physical and psychological consequences of the stressful work environment, while the issue of nurses' role conception, that can alleviate some of those consequences, did not have the concern that it deserves. Few are the studies that were found to focus on nurses' role conception and the effects of role discrepancy on nurses' psychological health and behavioral intentions. This gap was a motive for this study to focus on nurses' role discrepancy in Jordan, a country that had no studies found with this regard.

ICU Environment

Started in mid-1960s, the ICU was found to gather patients who are critically ill in a defined place where they can be attended by knowledgeable, skilled, and compassionate personnel with a close access to life supporting equipments (Balbierz, 1977). Then, the number of ICU units increased over time. Between 1985 and 2000, the ICU beds increased in the USA by 26.2% (69,300 to 87,400) with an occupancy rate 65%, and a cost of $55.5 billion (Halpern, Postores & Greenstien, 2004). Nowadays, The Hearld has mentioned that admission rate to the ICUs in Scotland has increased by one third.

According to Balbierz (1977), because ICU contains both the life-sustaining activities along with noise and the fast-paced actions, it is considered as a contradictory environment. Also, ICU contains patients who are more instable and disoriented, which requires care workers who are capable to do continuous evaluation and intervention. This working environment can negatively affect everybody works there, including the RNs, which in turn can affect the safety and quality of the care those patients receive.

The concern about the nurses working in the ICU first appeared in studies reported in the late 1960s. even though some literature found that the stress level that was found in ICU is comparable to that found in the general floors (Boumans & Landerweerd, 1994; Mrayyan, 2006), ICU was perceived, by the sum of the found literature, to be an extremely stressful work environment for the RNs and other health care workers who work there (Ahmad, Saleem, Shankary & Safady, 1994; Cartledge, 2001; Chan & Huak, 2004; Goodfellow et al., 1997; Ruggiero, 2003). Moreover, Cartledge (2001) stressed on the need for having the awareness of the potential for the nurses to become excessively stressed in the ICU environment. Therefore, "working in ICU as a staff nurse for a long time could be emotionally and mentally exhausting, and can lead to psychological disorders such as anxiety and depression" (Ahmad et al., 1994 p. 37).

Jakob & Rothen (1997) conducted a statistical study to assess the temporal changes in patients' characteristics, nursing workload, and outcomes of patients within certain ICUs in Switzerland between 1980 and 1995. The authors reported a significant increment in the number of patients (1,825 to 2,305, $p < .01$), the percentage of patients aged more than 70 years, (19-28%, $p < .01$), occupancy rate (85-100%, $p < .05$), and the number of nursing work days per year (7,454-8,681, $p < .05$). Concurrently, the authors concluded that the measurement of nursing workload showed a significant increment over time.

Different types of ICU stressors, sources of stress, have been found in the literature to affect the ICU nurses with varying degrees. These stressors could be classified under three main categories of stressors; Interpersonal relationship, management of the unit, and direct patient care activities (Chiriboga & Baily 1989). Balbierz, (1977) considered any perceived threat to nurse's self image, goals, or roles,

as a care provider, as a stressor that can affect nurses. For instance, the high rates of mortality, the nature of death in the ICU, and the fast changing pace of work were described by Lally & Pearce (1996) as the leading causes to what has been described as an environment of hidden tension and anxiety. Other important ICU stressors affecting the ICU nurses included the units' management, interpersonal relationship, patient care, knowledge and skills, and the physical working environment (Baily, Steffen & Grout, 1980).

Another study by Ruggiero (2003) found the ICU to be a very busy place, whatever the shift is, and the level of fatigue encounters the ICU nurses is the same among day and night nurses due to the similarity of shift duties of nurses within the ICU. The author explained the reasons by stating that the ICU nurses, working in any shift, have to deal with a lot of procedures, evaluation of test results, visitors, physicians' consultations, and changes in treatment orders. Furthermore, the rapidly expanding medical technology along with the increased job complexity and associated ethical dilemmas, the cost containment and restructuring programs, which restricts the nurses' available resources, along with the new types of infectious diseases nurses confronting each shift such as AIDS and the severe acute respiratory syndrome (SARS) were reported as the factors that have contributed to the increased level of workload and stress within the ICU environment (Blanc, Jonge, Rijk & schaufeli, 2001; Chiriboga & Baily, 1989; Su et al., 2007).

In general, research studies on the effects of stressful events have focused on the primary victims of those events (mainly patients). But nurses working in hospitals, especially in the ICUs, are exposed to stressful events in their daily work of taking care of those victims and sick people and their needs were largely ignored (Vachon,

1987). So, nurses should be considered as at risk for developing psychological disorders (Laposa et al., 2003).

The fact that the ICU nurses are at more risk makes it a necessity on nursing researchers to focus on the ICU, without ignoring that nurses in the other floors might have comparable levels of stress at certain times and places. So, this study has adopted this research setting to more fully explore the environment with regard to the nurses' role discrepancy. However, comparing stress between the nursing units can be considered as a research approach, but at the same time, we should not forget that it will hide the essence of the problem of stressful nursing environment behind the debate of which unit is more stressful than the other. In actuality, nurses in all units have reported the same shortcomings with regards to the conditions of their work environment.

Role Discrepancy and Stress

Reality shock is one of the most important problems that face the new nursing graduates when they start their practice. Kramer (1974) stated that reality shock emerges as a result of the differences between nurses' expectations and the reality of their clinical practice. Unfortunately, not only new nurses feel this difference, but also the experienced nurses suffer from the reality shock or its chronic form that is called "theory-practice gap" (Takase et al., 2006c p. 757). The reason behind this reality shock is believed to be the nursing education within the nursing schools, which produces nurses with advanced professional roles that are considered inapplicable within the actual nursing work environment due to the organizational policies and/ or the heavy nursing work load (Yung, 1996).

According to Taylor et al. (2001), by internalization of certain values and norms, and through the anticipation of the social actions among other preferences, the

roles can define the way individuals act. With this regard, nurses come to the work having certain expected roles to do, and for whatever reason, they are asked, sometimes, to do things that they did not expect to do. Duchene (2002) reported that more than 50% of the nurses believed that they do not have enough time for providing adequate direct patient care, and 75% believed that they are caring for too many patients, and that the quality of the nursing care is declining due to the inadequate staffing. Also, Dworken (2002) stated that whenever there is a shortage of nursing assistants, nurses are expected to fill out the assistants' roles including emptying garbage and changing beds.

This will lead to (a) ignoring the professional roles of the nurses as taking histories, formulating the individualized patient care plans, and teaching patients and their families; and (b) making the participation in the professional activities and organizations secondary in nurses' concerns (Black, 2002). The result is a feeling of incongruence that is known in literature by role conflict, or role discrepancy, which was defined by Takase et al. (2006c) as "the incongruence between nurses' ideal roles and the roles they actually engage in at work" (p. 752).

Corwin (1960; cited in Talotta, 1990) was the first to mention the concept of role conflict, and defined it as "the extent to which an ideal conception of a role is perceived to be impractical" (p. 111). Also, Corwin identified two antithetical roles; (a) the bureaucratic role that focuses on both punctuality and adherence to the hospital rules; and (b) the professional role that focuses on the professional concepts as autonomy and professional decision making. That identified, Black (2002) concluded that role conflict may occur as the nurses are trying to embrace a professional role while still adapting to a bureaucratic role.

Role discrepancy has been studied in some research studies as a source of stress for the nurses, and was found to have different psychological and behavioral consequences. Using the Role Conception Scale, Black (2002) conducted a study that examined the relationship of role discrepancy with stress among hospital based nurses. The study found the total score of role conception to be + 6.25 (range of - 48 to + 48), and the mean stress level to be 2.25, out of 5, which lies between 2 (*moderate, some bad days but overall content*) and 3 (*severe, but plan to stay in this job*). Both scores of the stress and the role discrepancy were considered low by the author. However, the author found no relationship between professional role discrepancy and the nurses' perceived stress level ($r = 0.15$, $p = .34$).

Many defects were noted in the above mentioned study, which questions the reliability of its findings. Among those defects are: (a) Using only 44 participants, which was considered very small sample size; (b) using three different categories of nurses (diploma, associate degree and baccalaureate nurses), who have different educational and practice backgrounds as well as different professional role perception, as one group; (c) using one item scale for measuring stress, which is known to have many aspects to measure; and (d) using an old questionnaire in which the author was doubtful in regard to its accuracy in describing the current professional and bureaucratic behaviors. However, knowing that this study was among the few studies that have examined the concept of role discrepancy among nurses, we shall conclude that this area of research is still in need for more exploration to more accurately identify how the role discrepancy can affect RNs both psychologically and behaviorally.

Another study by Takase et al. (2006b) examined the relationship of role discrepancy with turnover intention among nurses in Australia. For that purpose, the

authors used the Nurses' Role Conception Scale (NRCS) to measure role discrepancy, and the modified Withdrawal Cognition Scale (WCS) to measure turnover intention. The results revealed that nurses tended to experience role discrepancy (ideal role conception = 5.01, out of 6, while the actual role conception = 4.01, $p < .01$). As expected, larger discrepancies were observed in the areas of high professionalism such as patient education, decision making on work conditions policy, and decision making on hospital support policy. Also, the regression analysis, using the linear terms of role conception, actual role, and turnover intention, revealed that role discrepancy explained a significant variance with nurses' turnover intention. Moreover, using the polynomial regression with the higher order terms, the variance was significantly increased.

According to the authors, this supported that "the overall relationship between nurses' role conception, the actual nursing roles, and nurses' turnover intention is better explained by a curvilinear relationship" (p. 1075). Finally, the authors recommended this study to be replicated using bigger sample sizes of nurses, and in different countries because of the low reliability noted on part of the used questionnaire. As a response to that recommendation, this study will be conducted among the Jordanian RNs to prove that role discrepancy is a global nursing problem, and, at the same time, to test for the new questionnaire's validity and reliability.

Finally, role discrepancy is a problem that has been undervalued by nursing researchers. Very few are the studies that have explored this phenomenon. Even though those studies have been conducted in the western countries, their results still are showing that the nurses are suffering from role discrepancy. The question is that, what is the case in the developing countries, where there are limited resources and the nurses are required to do everything for their patients? The answer is blank because

no studies have taken the initiation to investigate this phenomenon in any of those countries. Also, this study comes to fill out the gap of no studies have explored the effect of role discrepancy on nurses' psychological status.

Jordanian Nursing Workforce

According to the Jordan Nurses and Midwives Council, in 2007, the number of nurses in Jordan was 16,012, which constitutes the largest number among the health care professionals in Jordan. This first rank is at risk as many nurses are migrating to outside, specially to the Gulf countries, USA, UK, Australia, and Canada, searching for better work conditions and better salaries. Approximately, the average salary for the newly graduated nurses ranges between $400 and $600. Jordanian nurses are sharing the nurses, globally, the same stressful work environment previously discussed, if not even worse because Jordan is considered one of the developing countries that is known for its limited resources. Abualrub (2007) summarized the causes of the high nursing turnover rates and the nursing shortage in Jordan as the following: (a) slow salary increases, (b) fewer women are selecting nursing as a profession, (c) a decreased number of nursing faculties, and (d) the unattractive nursing work environments.

Jonsson & Halabi (2006) conducted a qualitative study among the Jordanian RNs to identify the causes of PTSD symptoms and their relationship with daily work stress exposure. The authors concluded that "Jordanian nurses are at risk for high levels of stress symptoms" (p. 89). Also, Mrayyan (2006) reported that the Jordanian nurses were neither satisfied nor dissatisfied in their jobs, which reflects a case of neutrality that can not help in promoting nursing care, and at the same time, certifies the need for a better work environment for nurses. However, Mrayyan reported that the annual turnover rate among Jordanian nurses to be 18%.

According to the Ministry of Health (2006), Jordan has four health care sectors; public (30 hospitals), private (58 hospitals), military (11 hospitals), and teaching (two hospitals, the biggest in the country). The level of nurses' satisfaction with work environment varies from one sector to another as was found by Mrayyan (2005), who reported more satisfaction rates among the RNs who work in private hospitals than the RNs who work in public hospitals. Also, the author reported that private hospitals' nurses had more intention to retain their job than public hospitals' nurses.

Concerning the fact that the ICU is more stressful for nurses than other nursing floors, it was proven to be true among the Jordanian nurses. Ahmad et al. (1994) compared the level of stress and depressive symptoms among the nurses from the ICU, hemodialysis unit, and regular floor. They found that the ICU nurses were suffering from more stress and depressive symptoms than nurses from other units. Also, Mrayyan, (2006) noted that Jordanian nurses in the ICU had a slightly lower level of satisfaction than nurses from regular floors. Finally, Abdulfattah (2001; cited in Jonsson & Halabi, 2005) reported that the Jordanian nurses experienced high levels of stress that were significantly related to inadequate knowledge and inadequate support from peers and supervisors.

Up to our knowledge, no study was found to explore the role discrepancy and its consequences among Jordanian RNs. So, this study is devoted to be the first with this regard. This study builds on the recommendations of (a) Takase et al. (2006b) who suggested their study to be replicated in different countries (done only in Australia), and their modified instruments to be applied among different samples to test for their validity and reliability; and (b) Abualrub (2007) who recommended nursing researchers in Jordan to conduct research studies concerning nursing work

conditions as one of the strategies to deal with the nursing shortage in Jordan. However, due to time constrain, a hospital from the teaching health sector was used for the purpose of this study. Expanding this study to include the comparison between all health care sectors in Jordan is planned for future studies.

Gaps in the Literature of Role Discrepancy

Starting with the gaps identified by Takase et al. (2005) who reported that the studies that have investigated the nursing work stress had the following gaps: (a) Nurses' were treated as agents who passively respond to their environment; (b) Nurses' actual interpretation and judgment of their environment and their professional needs was ignored; and (c) The over-enforcement effect on nurses was not explored. Other gaps noticed in the literature of role discrepancy included:

1. The absence of nursing theories that illustrate this phenomenon, which forced nursing researchers, including the researcher of this study, to rely on theories from outside nursing.
2. Most of the literature has concentrated on western countries such as USA & Australia, with no studies found in the eastern countries, including Jordan.

However, it is known that findings from any country may not necessarily apply for other countries due to the effects of different cultural factors on the ways certain factors are defined, perceived, and handled. This study comes to fill out those gaps in the literature of role discrepancy including the absence of studies in Jordan as one of the eastern countries. Also, this study tried to apply what was identified by Takase et al. (2005) that nurses' opinions should be considered in any study concerned with exploring nurses' work environment.

Control Variables

The last section of this chapter will be devoted to discuss some of the demographic variables that represent the characteristics of the nurses, which are going to be measured through this study. These demographics include; age, gender, marital status, level of education, years of experience, and number of night shifts per month. Also, on a scale of 0-10, nurses were asked to rate their satisfaction with their salary, work, and work environment

Age

Age is believed to affect how the nurses might deal with the different stressful events within their work environment. According to Aiken et al. (2001), younger nurses (less than 30 years) had more intention to leave their jobs than nurses who are older than 30 years. Also, Yamashita (1995) reported that age was positively correlated with the scores of job satisfaction in a sample of Japanese nurses. Knowing that Jordanian RNs are considered young with a reported average age of 27.7 years (Hweidi & Al-Hassan, 2005), and 29 years (Jonsson & Halabi, 2006), we can conclude that nursing workforce in Jordan is at more risk of losing more and more of its members. So, including this variable can give more insight to how much this is true for the Jordanian RNs, which in turn, can alarm the health policy makers and nursing administrators to the importance of finding strategies for retaining nurses.

Gender

The WHO (2002) stated that the health labor market in the developed countries is characterized by a large presence of women, while the women form the majority of the nurses in the developing countries. In Jordan, we are witnessing a significant change with regard to the percentages of male and female nurses as more male students are applying for the nursing schools. Those male students are coming to

nursing hoping they will find a job after they graduate as the unemployment rates are increasing among the other Jordanian professionals.

Due to the significant differences between the two genders in perceiving different kinds of stressors, gender is a permanent variable in nursing studies that explore the nursing work environment. For instance, Hart (2005) reported that "female RNs were more likely to have higher intention of staying in their present position" (p. 175). This variable is of special concern within the Jordanian community where women are the primary care provider for their families. They raise the children, run the household, and care for parents and husbands. Regardless if they are employed or not, they are expected to work at home, which creates more stress on their sides (Abu Gharbieh, 1993). Many studies have reported gender difference with regard to the perception of different kinds of stress within the nursing work environment. Ahmad et al. (1994) found the Jordanian female nurses in the ICU to be more anxious than the male nurses at the same unit.

Years of experience (professional and positional)

Staying in the profession, or the position, for a longer time gives more experience to the RNs with regard to the stressful situations within their work environment, which enables them to deal with the future stressors. Hart reported that "nurses who had been RNs longer and those who had been in the current positions longer were more likely to report intention to stay in the current positions" (p. 175). Similarly, years of experience was found to be positively correlated with the scores of job satisfaction among Japanese nurses (Yamashita, 1995).

Level of education

It is known that nurses with higher level of education are having more professional expectations, ambitions and enthusiasm. So, highly educated nurses are

expected to suffer more than other nurses if the work environment is not satisfactory for them. Such an expectation was found to be true by Yamashita (1995) who found the more educated nurses to be less satisfied with their work environment than other nurses. Conversely, Ahmad et al. (1994) found the RNs and practical nurses in Jordan to have similar reported levels of anxiety and depressive symptoms. However, this study is concerned with RNs holding baccalaureate degree and higher. Focusing some light on this variable can give the nursing administrators a better understanding of the needs of the professional nurses in order to fulfill those needs as we are trying to retain those nurses.

Night shift

This variable is considered among the stressors for the nurses within their work environment because of the disturbance that it can make for nurses' lives. Ruggiero (2003) compared chronic fatigue, quality of sleep and depressive symptoms between day nurses and night nurses. The author reported that while the two groups did not have significant differences in the reported level of chronic fatigue, the nurses who worked at night shifts reported having more depressive symptoms and poorer quality of sleep than the nurses who worked at day shifts. However, the author reported that both depressive symptoms and poor quality of sleep were among the most relevant variables to explain the chronic fatigue among nurses. These results confirmed what was reported by Yamashita (1995) who reported that the number of night shifts had a significant negative correlation with the scores of Japanese nurse' job satisfaction.

Income

Even though nursing is a humanistic profession that seeks rewards through drawing smiles on their patients' faces, this variable has a special concern as it

constitutes the physical rewards that nurses get for taking care of the patients. Buerhaus et al. (2007) considered the low income as one of the most important reasons for the nurses' turnover. Through their income, nurses can take care of themselves and their families, and prepare themselves for the next day to take care of other patients. However, it is known that a satisfying income can cover a lot of the shortcomings in the nursing work environment through having them compensated for the stress they live. This explains why it is difficult not to ignore this variable in any study concerned with nurses' satisfaction and turnover. Bauman (2007) reported that the absence of adequate remuneration is a major reason for why nurses' migrate to many parts of this world, especially with the absence of other sources of satisfaction.

Summary

The literature is telling us about the global dimension of the problem of nursing workforce shortage due to the aging of the nurses, high nurses' turnover rates, and the declined rates of enrollment of new nurses. Investigating why more nurses are leaving and less nurses are enrolling to the nursing profession revealed that the image of nursing as a stressful profession was a major reason. Nowadays, nursing profession is known to the public as a stressful profession. However, it is known that nursing units vary with regard to the stressfulness of their work conditions, with the ICU being perceived as one of the most stressful units. Also, many stressors have been identified by the literature to cause these stressors within the nursing work environment. Those stressors were found to be interrelated, which makes it difficult to include all of them at the same time in one study. Among those stressors is the role discrepancy, which was found, by few studies, to contribute to psychological and behavioral consequences among the RNs.

Investigating RNs' role discrepancy as part of the nursing environment variables is expected to be helpful in exploring nurses' decisions to leave either their positions or even their profession. Also, it should be helpful in identifying some of the causes of stress within the nursing work environment. By doing so, we can provide insights and formulate retention strategies to be adopted by nursing policy stake holders.

Due to the insufficient empirical data in the literature of role discrepancy and its consequences, especially in Jordan, this study is going to use the descriptive design, which is believed to be helpful in this situation. Also, focusing on the consequences of role discrepancy, and not only on the problem of role discrepancy, came from the literature that called for more studies to explore this phenomenon and its consequences, which will provide health care administrators with clear views regarding the disturbances caused by the role discrepancy to the process of patient care.

Chapter Three

Methodology

The purposes of this study were (a) to describe the concepts of role discrepancy, depressive symptoms, and turnover intention among the ICU registered nurses in Jordan; and (b) to examine the relationship of role discrepancy with both RNs' level of depressive symptoms and turnover intention. This chapter will explain how those two purposes were achieved through introducing the study's design, setting, sampling, procedure, measures, data management, data analysis, and protection of human subjects.

This chapter explains how did this study answer the following questions: (a) Do Jordanian ICU RNs perceive a discrepancy between their ideal and actual roles? (b) How much of the variance in the Jordanian ICU RNs' turnover intention is explained by role discrepancy? And (c) How much of the variance in the Jordanian ICU RNs' depressive symptoms is explained by role discrepancy? The person-environment fit theory (French et al., 1974) was adopted to guide this study.

Study Design

The descriptive correlational, cross-sectional design was used in this study to explore the level of role discrepancy, depressive symptoms, and turnover intention among the Jordanian nurses, and to examine the relationship of role discrepancy with both nurses' reported level of depressive symptoms and turnover intention. This design was chosen because of its advantages, summarized by LoBiondo-Wood & Harber (2002), which include (a) its flexibility to explore the relationship of two or more variables at a certain time without manipulation of the independent variables, (b) its usefulness to collect a large amount of information about a certain

phenomenon, (c) its potential for the practical applications within the clinical settings, and (d) its potential foundation for the future experimental research studies.

This design fits with the requirements of this study, which is concerned with the relationships of three variables, two at a time, at a certain point of time, and does not manipulate the independent variable, using one sample without having a control group. Also, Takase et al. (2006b) reported that nurses did experience the role discrepancy, but the psychological and behavioral consequences of role discrepancy are still lacking the empirical support. For such a purpose, Burns & Grove (2001) recommended the descriptive design as a helpful approach for investigating research areas with insufficient empirical support, especially with such variables, which are believed to be stable over a period of time. On the other hand, this design has disadvantages such as (a) the lack of manipulation of the variables of interest, (b) the lack of randomization in to the sampling procedure, which limits the generalizability of the study findings; and (c) the inability to determine a causal relationship between the variables because of the lack of manipulation, control, and randomization.

Setting

The sample of this study was selected from the RNs working at the ICUs of the Jordan University Hospital (JUH), a major teaching hospital in Amman, the capital of Jordan. According to the Jordanian Department of Statistics, in 2004, Amman contained 38.8% of the Jordanian population. The JUH is one of the oldest and the biggest hospitals in Jordan with more than 26,000 inpatients during 2005. This 540-beds hospital has eight ICUs (two surgical units, medical, cardiac, neuro, burn, pediatric, and neonatal) with more than 50 ICU beds, and a total number of 138 RNs. After determining their eligibility, eligible RNs were invited to voluntarily participate in this study.

The rationale of choosing the ICU was based on that the work experience differs from one work place to another (French et al., 1974). If the work environment is causing more stress and becoming more complicated, and does not offer nurses with their professional and personal needs, we can expect a higher role discrepancy and suffering among the nurses at that environment.

This can be applied to the ICU environment, which is considered as an extremely stressful environment for the nurses and the other health care professionals (Ahmad et al., 1994; Chan & Huak, 2004; Goodfellow et al., 1997; Ruggiero, 2003; Su et al., 2007). According to Balbierz (1977), ICU patients are characterized by more dependency, instability, and disoriention than patients in the regular medical and surgical floors, which demands health care workers to more fully observe, evaluate and intervene. Also, Cartledge (2001) stressed on the need for having the awareness of the potential for the nurses to become excessively stressed in the ICU environment.

Sampling

A non-probability convenience sampling technique, which refers to "the use of the most readily accessible persons or objects as subjects of a study" (LoBiondo-Wood & Harber, 2002 p. 243), was adopted for this study through many visits to the selected hospital units. This sampling method was considered because of its easiness to obtain the required sample size, and its compliance with the objectives of the study. On the other hand, the high risk of bias and the limited generalizability are among its disadvantages. However, convenience sampling is "the most commonly used sampling method in nursing" (Polit & Hungler, 1999 p. 282).

Sample size

For calculating the sample size, the power analysis technique (Cohen, 1992) was used by applying the multiple regression test, and using eight independent

variables (age, gender, marital status, level of education, years of professional nursing experience, years in the current position, number of night shifts per month, and the specialty of the unit). According to Cohen (1992), to use the power analysis technique, the following parameters are needed: (a) Level of significance (α) that is the probability of committing type I error, which represents rejecting the null hypothesis when it should be accepted; (b) power, which is the probability that statistical test is going to yield a statistically significant results (Cohen, 1988), and is usually represented as 1- β (the probability of making type II error, which is to accept the null hypothesis when it should be rejected); and (c) effect size (ES), which represents the degree to which a phenomenon is present in the population (Cohen, 1988).

Level of significance α = .05 and power (1- β) = .80 have been adopted for this study. These numbers are considered standards for the purpose of running the power analysis to estimate the sample size in nursing studies (Polit & Hungler, 1999) and in social sciences (Shadish, Cook, & Campell, 2002). Also, nurses' role discrepancy within the ICUs has been addressed by only few studies, but is not a brand new concept, and for the purpose of applying the conservative approach, a medium effect size, equals .15 using multiple regression test (Cohen, 1992), was used. So, by investigating the sample size table in Cohen (1992 p. 159), the required sample size was 107 participants.

With a total number of 138 RNs within the selected ICU units at the JUH, the required response rate was 78%. However, a rule of thumb of using the largest possible sample size was considered, which should make the sample more representative to the population and the mean more closely approximate to the population's value, and result in fewer sampling errors (LoBiondo-Wood & Harber,

2002). On the other hand, the researcher was trying to avoid the small sample size in order to decrease the probability of committing type I and type II errors. Committing type I error would lead to the overestimation of the perception of role discrepancy among the Jordanian ICU RNs, as well as, the contribution of the role discrepancy in to the nurses' levels of depressive symptoms and turnover intention. Committing type II error, on the other hand, would lead to the underestimation of the perception of role discrepancy and its contribution to the nurses' levels of depressive symptoms and turnover intention.

Inclusion and exclusion criteria

Participants' inclusion criteria for this study included the following: (a) being a registered nurse with a bachelor degree in nursing. Some nurses in Jordan receive a higher diploma degree by studying for 3.5 years in specific nursing colleges. They are then hired as RNs. This program is no longer available at the nursing schools in Jordan. Though, these nurses are still working in hospitals. Therefore, these nurses were excluded; (b) working in the ICU for at least three months, because the researcher needed RNs who experienced the setting for enough time beyond the time of the reality shock. At the same time, the researcher did not want too much restriction that would make it difficult to get the required sample size; (c) providing bedside nursing care, because most of the items within the NRCS and the modified WCS contained items for nurses providing bedside nursing care; and (d) able to comprehend reading in English, because the questionnaire was written in English and was not translated to the Arabic language. However, even though English is not the native language in Jordan, it is the formal language used for teaching within the Jordanian nursing schools and for the documentation and writing notes within the Jordanian hospitals.

On the other hand, exclusion criteria included the following:

1. Nurses with diploma degree and RNs who did not have the bachelor degree, because the researcher believed that they had different background throughout their education and practice. Also, their experience and professional expectations were anticipated to be different than the experience and professional expectations of the university-graduated RNs.
2. Nurses with experience less than three months within the ICU, as it was expected that before that time, they would not grasp the actual experience of being a registered nurse in the ICU, and some of them might continue to be under the effect of the reality shock.
3. Administrative nurses who were not performing bedside nursing care, because they would not be able to answer the NRCS, which contained, items related to bedside nursing care as patient discharge and patient education.

Nine administrative nurses were excluded, five nurses were excluded because of their period of experience (less than 3 months), and one nurse was excluded due to her weak English language because she was graduated from Syria, where the Arabic language is used for teaching nursing.

Response Rate

At the beginning, it is useful to mention that the characteristics of the pilot study were comparable to the characteristics of the study sample, and that no major changes needed to be done based on the pilot study. So, the researcher decided to include them within the total sample. At the time of the study, 138 nurses were working in the ICUs. Of these, 123 RNs met the inclusion criteria and were invited to participate. One hundred fourteen RNs participated in the study for a 93% response rate. This high response rate can be explained by the participants' Arabic and Islamic

cultures. The participants probably wanted to participate because they felt they were helping the investigator.

Sample Description

Demographic Characteristics

Only 36.8% of the participants were males (n = 42). The average age of the participants was 27.1 years (SD = 4.6), which ranged between 22 and 46 years. Sixty four participants (56.1%) were singles. Regarding the level of education, two options were given to participants to choose from; bachelor and master in nursing. Only six participants (5%) reported having the master degree, which was justified by the old policy of the JUH, which did not allow nurses to continue their higher education. Table 1 provides a detailed description of the nurses' demographic characteristics.

Table 1

RNs' demographic characteristics: Gender, marital status, level of education

Characteristics	n	%
Gender		
Female	72	63.2
Male	42	36.8
Marital status		
Single	64	56.1
Married	50	43.9
Level of education*		
Bachelor	107	93.9
Master	6	5.3

N= 114 * One case was missing.

Professional Characteristics

Nurses averaged 4.7 years (*SD* = 4.2) of nursing experience and 3.9 years (*SD* = 3.5) of ICU experience. Nurses working in 8 ICU units were included in this study, with the largest representation from both the SICU-1st floor and the Neonatal-ICU with 23 nurses each, and the lowest representation from both the Burn unit and the Neuro-ICU with seven nurses each. These numbers are representative of the size of the ICUs at JUH.

The average night shifts per month reported by the nurses was 7.8 nights (*SD* = 2.9), with a range of 0 to 22. However, it was reported by the nurses that they were required, by the JUH policy, to work 7-9 nights per month except in certain cases. For example older nurses reported doing fewer nights, and in some cases nurses asked for more nights during specific months. Forty six nurses (40.4%) were interviewed during the night shift, which may be due to the busy time during the day and the evening

shifts. Detailed description of the nurses' professional characteristics is provided in tables 2a and b.

Table 2a

RNs' professional characteristics: Nursing experience, current ICU experience, number of night Shifts per month

Characteristics	M	SD	Median	Min	Max
Nursing experience (years)	4.67	0.20	3.00	0.25*	21.0
Current ICU experience (years)	3.90	0.52	2.70	0.25*	15.0
Number of night shifts per month (nights)	7.84	0.92	7.00	0.00	22.0

*The minimum experience was 3 months

Table 2b

RNs' professional characteristics: Shift of filling out questionnaire, ICU specialty

Characteristics	n	%
Shift of filling out questionnaire		
Day	38	33.3
Evening	30	26.3
Night	46	40.4
ICU specialty		
SICU-1st floor	23	20.2
SICU-3rd floor	13	11.4
CCU	11	9.6
Neuro-ICU	7	6.1
Burn Unit	7	6.1
MICU	17	14.9
PICU	13	11.4
Neonatal	23	20.2

N= 114

Nurses' Level of Satisfaction

Participants were asked to rate their satisfaction with their salary, work, and work environment. The researcher used single item with a scale of 0-10 to measure the above mentioned variables. Nurses reported moderate levels of satisfaction with their salary, work, and work environment, with average satisfaction rates of 5.6, 5.4, and 4.2, respectively. Table 3 presents a detailed description of the nurses' levels of satisfaction with their salary, work, and work environment.

Table 3

Nurses' levels of satisfaction with salary, work, and work environment

Characteristics	M	SD	Median	Min	Max
Satisfaction with salary	5.56	1.85	6.0	0.0	10.0
Satisfaction with work	5.39	2.08	6.0	0.0	10.0
Satisfaction with work environment	4.18	2.10	4.5	0.0	8.0

Note: Maximum score = 10, higher scores indicate more nurses' satisfaction with the stated item.

Measurement

Instruments (Appendix A)

The questionnaire of this study contained five sections: (a) the demographic data sheet, (b) the Nursing Role Conception Scale (NRCS) to measure nurses' reported level of role discrepancy; (c) the Center for Epidemiologic Studies Depression Scale (CES-D) to measure nurses' reported level of depressive symptoms; (d) the modified Withdrawal Cognition Scale (WCS) to measure nurses' turnover intention; and (e) a single open-ended question to enable participants' expression of their feelings, and to add any note that was not included in this questionnaire. The following is a description of each section.

Demographics

The demographic data sheet was developed by the researcher, and contained the information required to describe the characteristics of the sample. The demographics are helpful in comparing the findings of the study with the findings of previous related studies. Participants were asked to report the following; gender, age, marital status, level of education, years of nursing professional experience, years of ICU experience, specialty of their unit, number of night shifts per month, and the shift

at which the questionnaire was filled out. Also, on a scale of 0-10, how satisfied they were with their salary, work, and work environment.

Demographic data included both categorical and continuous variables. Categorical variables included: Gender (male, female), specialty of the ICU (surgical-1st floor, surgical-3rd floor, medical, cardiac, neuro, burn, neonatal, and pediatric), marital status (single, married, divorced, widowed), level of education (bachelor, master), and the shift at which the questionnaire was filled out (day, evening, night). Continuous variables, on the other hand, included: Participant's age in years, number of night shifts per month, participant's years of experience in nursing, and participants' years of experience within the current ICU. Also, three single-item questions were used to assess how satisfied the nurses were with their salary, work, and work environment based on a scale of 0-10.

Role discrepancy

The second section of the questionnaire measured nurses' role discrepancy, which was defined as "the incompatibility between roles nurses desire and expected to take and roles they actually engage in at work" (Takase et al., 2006b p.1072). To measure nurses' role discrepancy, the NRCS, which measures nurses' conceptions of their ideal and actual roles concerning the use of nursing skills and task delegation, was used. The NRCS is a modified version by Takase (2005) who developed it using a combination of the Jefferson Survey of Attitudes toward Physicians-Nurses Collaboration (Hojat et al., 1999) and the Staff Nurse Role Conception Inventory (Taunton, 1984). Permission to use this scale was obtained from Dr. Takase, Dr. Taunton, and Sage Publication, Inc.

The NRCS consists of two identical 10-items subscales, ideal and actual, among which each has two factors. The first factor "*the use of nursing skills*" assesses

nurses' ideal and actual conception of eight items concerning the participation in the clinical and administrative decision making, patient education, and providing emotional support. The second factor "*task delegation*" assesses nurses' ideal and actual conception of two items concerning delegation of basic patient care tasks to nursing assistants. Each item is rated with a 6-points likert scale ranging from "1" (*strongly disagree*) to "6" (*strongly agree*).

The total is 10 items from both factors for the ideal role conception subscale, with the high scores indicating that nurses are having a strong desire to engage in those roles, and 10 items from both factors for the actual role conception subscale, with the high scores indicating that nurses believed those roles are really applied in the actual work environment. Thus, it is possible to perform a comparison between nurses' desired roles (ideal role conception) and their perception of the actual roles assigned. The result is a scale that has two identical 10-items subscales (ideal and actual) with a possible range of 10-60 for each subscale. The higher score indicates more perception of the ideal roles (ideal role subscale), and more perception that the nurses are engaged in the roles (actual role subscale). Finally, the scale contains three reverse-coded items.

The original scale developed by Takase (2005) contained 12 items for each subscale, but the results of the factor analysis conducted by her revealed the two factors mentioned above. The researcher of this study decided to use the full version of the 12-items subscales hoping to re-run the factor analysis among a larger sample in the future after finishing this dissertation (*N* of the original study was > 300 participants). To conclude, the 12-items subscales were used in data collection, but only 10 items were included in the data analysis.

Concerning the reliability of the NRCS, Takase (2005) reported that the reliability score for the actual role subscale was .73, whereas the subscale that measures nurses' ideal role had a moderate reliability score of .62. This low reliability was considered as a weakness in this scale (Takase et al., 2006c). However, the researcher believed that the scale still beneficial for this study for many reasons. First, the low reliability was in one part of the scale while the other part had a good reliability score. Second, this scale was the most recent and only one study has applied it, and applying it in this study, using a different population, was believed to give different results especially if we knew that there was a limitation in the population of the original study. Third, other scales that measure role discrepancy were not of a better shape than the NRCS. For instance, the Corwin Role Orientation Scale had a low validity and reliability, and the Role Conception Scale (Talotta, 1990) was described by Black (2002) as an "old scale that does not accurately describe the current professional and bureaucratic behaviors" (p. 25).

Depressive symptoms

Depressive symptoms were defined as “a broad continuum of changes in the affective state, ranging from the normal mood fluctuation of everyday life to a severe, and even, psychotic melancholia” (Kupfer & frank, 1981 p. 9). To measure nurses' level of depressive symptoms, the Center for Epidemiologic Studies Depression Scale (CES-D) was used. The CES-D is a short self-report scale that measures the current level of depressive symptoms in the general population (Radloff, 1977), and it is considered useful to assess the relationship between depressive symptoms and other variables across the population.

The CES-D consists of four major factors; depressed affect, positive affect, somatic & retarded activity, and interpersonal difficulties. This scale has 20 items that

detect the frequency with which depressive symptoms that have been experienced by the participants in the past week. It uses a 4-points likert scale ranging from "0" (*rarely or none of the time*) to "3" (*most or all of the time*). The range of the scores is 0 to 60, with the higher scores indicating the presence of more depressive symptoms. According to Radloff (1977), a score of 16 is considered as a cut-point that indicates the presence of the depressive symptoms, with scores of 16-22 indicate moderate depressive symptoms, and scores of 23-60 indicate severe depressive symptoms with transferal needs.

The reported validity and reliability results of this scale support it to be used among different populations including the RNs. Radloff (1977) reported that the internal consistency of the CES-D was .85 and .90 in the general population and in a group of patients, respectively. Also, Radloff reported a good criterion-related validity of the CES-D with Hamilton Clinician's Rating Scale and with Raskin's Rating Scale that was .44 & .54 at admission, and .69 & .75 after weeks of treatment, respectively.

The CES-D has been used many times to measure the level of depressive symptoms among nurses in different countries. For instance, Baba et al. (1999) used the CES-D scale to measure the work-related depressive symptoms among general nurses in the Caribbean, and reported that the Cronbach alpha for the CES-D in their study was .82. Also, Ross et al. (2005) translated the CES-D to the Thai language to measure the level of depressive symptoms among nursing students in Thailand. They reported that the internal consistency of the Thai-version of the CES-D in their study was .89. Finally, McCleave, (1993) reported that the CES-D demonstrated a convergent validity by having .81 correlation with Beck Depression Scale. No permission was needed to use this scale within this study.

Turnover intention

The nurses' turnover intention was defined as the "attitudinal (thinking of quitting), decisional (intention to leave), and behavioral (searching for new job) processes proceeding voluntary turnover" (Takase, 2005 p. 14-15). To measure nurses' turnover intention, the modified version of the Withdrawal Cognition scale (WCS) (Takase, 2005) was used. The original scale was developed by Mowday, Koberg, & McArthur (1984) to measure the three factors of the turnover (thinking of quitting, searching for new jobs and intention to quit).

The modifications that have been made by Takase (2005) included (a) measuring two different occasions of nurses' turnover intention: leaving the organization looking for a new nursing job and leaving nursing as a profession; and (b) changing the rating scale from a nominal scale to 6-point likert scale starts from "1" (*strongly disagree*) to "6" (*strongly agree*). The scale has five items, which makes the range 6 to 30, with the higher scores indicating strong turnover intention. Also, it is important to mention that the scale has three reverse-coded items. According to Takase (2005), the WCS was found to have a good reliability score of .79, and its construct validity was established with a result of one factor solution, contained five items, that explained a total variance 39.78%. Permission to use this scale was obtained from Dr. Miyuki Takase and Dr. Rick Mowday.

Again, the original scale developed by Takase (2005) contained six items, but the results of the factor analysis conducted by her revealed one factor with only five items. The researcher of this study decided to use the full version of the 6-items scale hoping to re-run the factor analysis among a new sample in the future after finishing this dissertation, where a bigger sample size should be obtained (*N* of the original

study was > 300 participants). To conclude, the 6-items scale was used in data collection, but only five items were included in the data analysis.

Validity and Reliability Testing

Validity

It is known that for the measures to yield credible and significant results, they should be valid and reliable. Validity refers to the accuracy of the instrument or "whether a measurement instrument measures what it is supposed to measure" (Lobiondo-Wood & Haber, 2002, p. 314). Content validity of the study instruments was established by the authors of the instruments. Also, the construct validity, which refers to "the extent to which a test measures a theoretical construct or trait" (Lobiondo-Wood & Haber, 2002, p. 316), is considered the most important type that can be established by several approaches, among which factor analysis is the most important. Establishing the validity of an instrument, using factor analysis, requires a large sample size (at least 300 participants). However, the researcher decided to run the factor analysis to draw an initial assessment for the construct validity of the instruments among the Jordanian nurses. Though, it is planned to extend this study in the future to include a larger sample size, which should enable the researcher to run the factor analysis to check for the validity of those instruments among the Jordanian nurses.

Factor analysis (FA) was conducted using principal-axis factoring with orthogonal (varimax) rotation. Factors that achieved Eigen value of 1.0 or more were kept in the analysis. Also, the FA assumptions of normal distribution, interval level of measurement, and the linear relationship were examined, and the outliers were checked for. Factor loading of .40 was used as a cut point to include the items within

any factor. The following is a description of the results of the factor analysis of the ideal and actual roles subscales of the NRCS, and the modified WCS.

Ideal role subscale of the NRCS

Ten items were entered in to the analysis. Initially, the FA results revealed a three-factor solution that accounted for 49.01% of the total variance. However, one item "*omission of patient education"* did not have the required strong factor loading on any of the three factors. Also, factor 3 had only one item, "*decision making regarding patient discharge"*, with strong and clean loading. Tabachnick & Fidell (2001) described the factor with only one item to be unstable. So, a two-factor solution (Table 4) was forced, which accounted for 37.78% of the total variance.

Table 4

Factor analysis of the ideal role subscale of the NRCS

Item	Factor loading	
	Factor 1	Factor 2
Developing patient care plan	**.76**	.17
Decision making concerning hospital support services	**.67**	-.21
Decision making concerning work conditions	**.66**	-.03
Providing emotional support to patients	**.63**	-.31
Carrying out doctors' orders	**.53**	-.18
Freedom to initiate referrals	.09	**.69**
Delegating patient activities of daily living	-.30	**.55**
Delegating patient hygiene measures	-.38	.47
Omission of patient education	.03	.35
Decision making concerning patient hospital discharge	.17	.19

Actual role subscale of the NRCS

Ten items were entered in to the analysis. The initial results of the FA revealed a three-factor solution that explained a total variance of 55.85%. Nevertheless, two items, "*carrying out doctors' orders*" and "*omission of patient education"*, did not have the required strong and clean factor loading on any of the three factors. Also, factor 3 had only one item, "*providing emotional support"*. Again, because this factor is considered unstable (Tabachnick & Fidell, 2001), a two-factor solution (Table 5) was sought, which accounted for 44.76% of the total explained variance.

Table 5

Factor analysis of the actual role subscale of the NRCS

Item	Factor loading	
	Factor 1	Factor 2
Decision making concerning work conditions	**.78**	-.07
Developing patient care plan	**.70**	.00
Freedom to initiate referrals	**.69**	.08
Decision making concerning patient hospital discharge	**.56**	-.05
Delegating patient activities of daily living	.03	**.65**
Delegating patient hygiene measures	.19	**.62**
Decision making concerning hospital support services	.21	**-.42**
Providing emotional support	.39	.06
Carrying out doctors' orders	.11	-.35
Omission of patient education	-.04	-.10

The modified WCS

Five items were entered in to the analysis. Results revealed a two-factor solution, which accounted for 59.47%. Each factor had two items (table 6) with a

strong and clean factor loading. The fifth item, "*all things considered I would like to find a nursing job in a different organization",* loaded less than .40 on both factors.

Table 6

Factor analysis of the modified WCS

Item	Factor loading	
	Factor 1	Factor 2
I will probably look for a non-nursing job in the near future.	**.80**	- .01
All things considered, I would like to find a non-nursing job.	**.76**	.22
I intend to remain in the current organization more than a year.	.09	**.66**
I do not intend to quit nursing within a year.	- .01	**.44**
All things considered, I would like to find a nursing job in a different organization.	.06	.18

Comparing those results of FA with the results reported by the author of the scales revealed differences in the number of factors (the modified WCS), and the number of items within each factor (NRCS). Also, the items content of each factor was not found to be the same. Concerning the NRCS, Takase (2005) conducted the FA by combining both subscales using identifiers. However, the technique was not fully explained in her dissertation. So, upon the consultation of Dr. Christopher Burant and Gregory Graham (02/26/2009), the researcher conducted the FA separately for each subscale. Due to this incompatible validity results between this study and the original study, the researcher recommends the results of this study be cautiously taken.

Reliability

Reliability refers to the consistency of the instrument or to "the extent to which the instrument yields the same results on repeated measures" (Lobiondo-Wood

& Haber, 2002, p. 319). It is recommended to reestablish the instrument's reliability whenever the characteristics of the study sample are different from the sample in the original study. This case was applied in this study because participants' native language was not the English language, which was the language of the used scales.

Reliability is the ratio of the accuracy to inaccuracy in measurement that has many types, among which the internal consistency is the most commonly used. The reliability levels of this study instruments were established using the internal consistency through calculating the Cronbach's alpha, which is the most commonly used. Lobiondo-Wood & Haber (2002) stated that Cronbach's alpha simultaneously runs a comparison between each item in the scale with all other items in the instrument.

Different levels of Cronbach's alpha coefficient were found for the study instruments. For the NRCS subscales of ideal role conception subscale and actual role subscale and the modified WCS, the recommended criterion level for a good reliability level of .70 (Lobiondo-Wood & Haber, 2002) was not achieved. Table 7 lists the reliability levels of the study instruments along with their statistics.

Table 7

Reliability levels of the study instruments

Instrument	Cronbach's alpha	Mean	SD	Variance	Number of items
NRCS					
Ideal role subscale	.28	42.67	5.09	25.89	10
Actual role subscale	.56	31.43	7.28	52.10	10
CESD	.88	26.68	10.99	120.84	20
The modified WCS	.47	17.96	4.85	23.48	5

Pilot Study

The rationale for conducting a pilot study emerged from the following two reasons: (a) Two sections of the questionnaire (NRCS and the modified WCS) were applied for the first time among the Jordanian RNs; and (b) the language of the questionnaire was the English language that is different from the native Arabic language of the study participants. However, there was no need to translate the questionnaire because the English language is the language that is used within the Jordanian nursing schools for teaching, and within the Jordanian hospitals for documentation. By conducting the pilot study, the researcher was able to assess the clarity and the understandability of the questionnaire, and to check the feasibility of the data collection process. No major change were required, and the results and comments emerged from the pilot study were taken in consideration to modify the sequence of the final version of the questionnaire in a way that made it easier and more readable for the participants.

Throughout the pilot study, 32 nurses participated from four different ICU units. The response rate was 91%, which was very encouraging to the researcher. Part of this high response rate could be explained by the participants' Islamic and Arabic cultures, where people like to help others to accomplish their goals. The data collector did not report any major problem during the data collection for the pilot study. However, minimal things emerged as the busy work shifts, which the data collector dealt with on the spot.

Regarding the demographics of the pilot study participants, their average age was 27.9 years (*SD* = 4.62), with an average of 5.4 years of experience in nursing (*SD* = 4.16), and 5 years of experience in the current ICU setting (*SD* = 4.11). In average, nurses reported working 7.2 night shifts per month (*SD* = 1.74). Also, when nurses

were asked to rate their satisfaction with their salary, work, and work environment on a scale of 0-10, their average satisfaction rates were 6 (*SD* = 1.95), 6.5 (*SD* = 1.83), and 4.6 (*SD* = 2.28), respectively. Table 8 describes the categorical demographics of the pilot study sample.

Table 8

Demographic characteristics of the pilot study participants (n= 32)

Characteristics	n	%
Gender		
Male	11	34.4
Female	21	65.6
Marital status		
Single	20	62.5
Married	12	37.5
Level of education		
Bachelor	30	93.8
Master	2	6.2
Working setting		
Surgical ICU (1)	13	40.6
Neuro ICU	1	3.1
Pediatric ICU	5	15.6
Neonatal ICU	13	40.6
Shift at which the questionnaire was filled out		
Day	7	21.9
Evening	15	46.9
Night	10	31.2

Procedure

Recruitment

Before starting the data collection, the study needed to be approved by both the institutional review board (IRB) committee at the JUH and the (IRB) committee at Case Western Reserve University (CWRU). At the beginning of the data collection process, the head nurses of the assigned ICUs were approached with the purposes of the study, and RNs were interviewed and invited for the voluntary participation. Also, head nurses were asked to assign a private room for the RNs who accepted participation to fill out the questionnaire, which was believed to provide more protection for participants' confidentiality and privacy, and to give them some kind of security that their data were not exposed. Also, Due to the Islamic and the Arabic cultures, the female nurses were believed not to feel comfortable of being interviewed by a male data collector. So, this private room was expected to alleviate that discomfort. The data collector, through many visits, interviewed the eligible nurses who were working at the time of those visits, and invited them to participate in the study.

The data collector was one of the colleagues of the researcher who was living in Jordan, and was teaching at the Jordan University-School of Nursing that is nearby the JUH. He took the responsibility as a contact person between the researcher and the JUH, the head nurses of the ICUs, as well as the participants. He was taught by the researcher with regard to the objectives of the study, the required steps for data collection starting from obtaining the ethical approval from the IRB of the JUH, contacting the head nurses of the assigned ICUs, interviewing participants and inviting them to participate in the study, collecting the filled out questionnaires and

shipping them to the principal investigator, and finally protecting the human rights of the participants.

Data Collection

RNs who agreed to participate were asked to read and sign the informed consent (see Appendix B), after which the questionnaires were handed to them in closed envelopes. They were asked to return the filled out questionnaires back to the envelopes. Also, participants were instructed to go individually to the assigned room to complete the questionnaires. Completion of the questionnaire took approximately 20 to 30 minutes, during which the data collector was waiting as the participants completed answering the questionnaires.

Participants were instructed to read through the questionnaire that contained five sections; demographics, NRCS to measure nurses' role discrepancy, CES-D to assess nurses' level of depressive symptoms, the modified WCS to assess nurses' turnover intention, and the open-ended question to express any further ideas. Participants were expected to answer all the questions included in the questionnaire. This sequence was adopted based on the research model that assumed role discrepancy to contribute to both the depressive symptoms and the turnover intention.

The questionnaires were coded before being handed to the participants. Each code included a number for the unit and a number for the participant. As the participants finished filling out the questionnaires, they were asked to insert them in the envelopes, and seal them before they handed them back to the data collector, who thanked them for their time and for the contribution they made in enhancing nursing knowledge with regard to nurses' role discrepancy.

Data Management

The data collector received the questionnaires from participants and shipped them to the researcher through the DHL® shipment services. For the protection of the mailed questionnaires, the address of the school of nursing at CWRU was used as the mailing address. Data entry started soon the researcher received the questionnaires to allow enough time for reviewing the coded surveys against the codebook. All the questionnaires (the raw data) and the computer data files were kept in a locked cabinet at the office of the chair of the research committee in the school of nursing, with no body allowed to have an access to them except the researcher and the committee members. Three copies of the computer data files were created and kept at the computer of the researcher, a jump drive, and at the computer of the committee chair, all of which were secured with a login password. Finally, according to the instructions of the IRB at CWRU, the raw data will be kept for three years after the completion of study.

Because the validity of the results depends on the accuracy of the data, and because it is essential to identify errors of data entry and coding at the earliest possible, the usable questionnaires were coded according to the codebook that was developed for this purpose. Each questionnaire was coded with two numbers, one for the unit and one for the participant. The Statistical Package for the Social Sciences (SPSS-16) software was used for the data entry as well as for the data analysis. Also, for the purpose of keeping the consistency of data entry, one person performed the data entry. This person was the researcher himself.

As soon as all the data were entered, data cleaning was performed through: (a) visual screening of the data for possible errors; (b) running frequencies, central tendency measures, minimum and maximum to check for outliers and missing data

that can occur due to errors of data entry or extreme values provided by some of the participants; and (c) rechecking all the questionnaires for the accuracy of the data entry.

Missing Data

Most research studies end up with some missing data, which is not uncommon (Bryman & Cramer, 2005; Musil, Warner, Yobas, & Jones, 2002). However, the missing data should be taken care of because of their ability to mislead the conclusions of the study, and to limit the generalizability of the findings (Byrne, 2000). To deal with the missing data, it is crucial to identify their pattern along with their amount.

According to Kline (1998), missing data can be categorized according to their randomness in to three categories: (a) Missing completely at random (CMAR), which is characterized by the least likelihood to produce serious bias, the highest degree of randomness with no underlying cause for the missing data, and the independence of its occurrence from the other variables; (b) missing at random (MAR), which has some randomness, but related to other variables within the data set; and (c) systematic non-ignorable data, which is considered the most dangerous, and occur as a result of systematic and nonrandom factor.

At the beginning, questionnaires were double-checked by the researcher to distinguish if the missing data were actual or due to errors in data entry. Then, missing data were given different codes to identify them from regular data. The total amount of the missing data found did not exceed 5%. They were checked for pattern, which was found to be randomly distributed, and not related to other variables (characteristics of CMAR). According to Kline (1998), if the missing data are CMAR, they can be substituted using the average mean of the variables of the missing data.

According to Bryman & Cramer (2005), using the mean score can correspond the answer to the individual missing item by indicating that the participant generally answers ‘agree’ or ‘disagree’ on those items.

Some participants answered certain questions by checking two answers. For those cases, the researcher decided to use the average of the checked items for the purpose of distributing the error and to have more variability. Also, when participants were asked to report the number of night shifts they were making per month, some of them reported a range. For those cases, the average was calculated by adding the upper and the lower ends of the range divided by two.

Data Analysis

Data were analyzed using the SPSS-16 software. Measures of central tendency and dispersion were used to describe the characteristics of the sample as well as the study variables. Both independent and dependent variables were described in terms of means, standard deviations, skewness, and histograms. Also, frequencies and percentages were used to describe categorical variables, whereas means and standard deviations were used to describe continuous variables.

To test for the first research question (Do Jordanian ICU RNs perceive a discrepancy between their ideal and actual roles?), the paired t-test was used to test for the role discrepancy among nurses. The test compared nurses' ideal role conception with their actual role engagement. According to Bobko (2001), the paired t-test is helpful in testing the equality of two independent variables. The assumptions to be met for doing this correlation test are: (a) data are measured at interval level, (b) the relationship between variables is linear, (c) variables are normally distributed, and (4) the difference between the two variables is normally distributed.

For testing the second and the third research questions (how much of the variance in the Jordanian ICU RNs' turnover intention, depressive symptoms for the third question, is explained by role discrepancy), the polynomial regression analysis (PRA) (Edwards, 2002) was used. The PRA is a form of the linear regression model that is widely used when the response is expected to be curvilinear (Montgomery, Peck, & Vining, 2001). Edwards (2002) identified the following assumptions to be met for this test:

1. The component measures should be commensurate, which means that they express the components in terms of the same content dimension.
2. The component measures use the same numeric scale.
3. All measures are at the interval or ratio level of measurement with no measurement errors.

Those assumptions were met in the case of testing role discrepancy using the NRCS, which contained both ideal and actual subscales that had the same content dimension, and used the same numeric scale, in which they used the interval level of measurement.

Edwards (2002) stated that PRA is an alternative to the difference score, which replaces it with the component measures that constitute the difference and higher order terms such as the squares and the product of these measures. The difference score is widely used in congruence research, among which the concept of fit is one of them. According to Edwards (2002), the difference scores had many methodological problems as (a) the lower reliability than either of their component measures, (b) inherent ambiguity because they combine measures of conceptually distinct constructs into a single score, (c) they confound the effects of their component measures on outcomes and impose constrains that are rarely tested empirically, and

(d) the possibility to reduce an inherently three-dimensional relationship between their component measures and the outcome in to a two-dimensional relationship.

Edwards (2002) identified the following basic principles for PRA: (a) Congruence should not be viewed as a single score, but instead as the correspondence between the component measures in a two-dimensional space; (b) the effect of congruence on an outcome should not be treated as a two-dimensional function, but instead, as a three-dimensional surface relating the two components to the outcome; (c) the constrain associated with difference scores should not be imposed on the data, but instead, should be treated as a hypotheses to be tested empirically.

Takase et al. (2006b) summarized the steps of the polynomial regression analysis as the following:

1. Entering the linear terms of nurses' role conception, their actual role (named C and A) to the regression analysis with the scores of nurses' turnover intention (score of depressive symptoms for question 3) serving as dependent variable.
2. Adding the higher order and the interaction terms of C and A (C^2, A^2, and CA that represent a curvilinear relationship) to the regression.
3. A significant increment of the variance after the addition of C^2, A^2, and CA will support for the curvilinear relationship (assumptions1 and 2) .

Takase et al. (2006b) recommended screening for the outliers before conducting the polynomial regression analysis. Those defined outliers were excluded, where found, because the regression equation involved a higher order terms, and the non-linear data transformation, which reduces the number of outliers, would make it difficult to interpret the findings. Also, the linear transformation of the data was conducted, if needed, in order to reduce the multicollinearity as the regression equation included higher order and interaction terms.

Even higher order terms of C & A such as C^3, C^2A, CA^2, and A^3 were added to the regression model to test if the relationship between nurses' role conception, their actual role, and turnover intention, depressive symptoms for question 3, can be described by a more complex curvilinear relationship than is described in figure 3. To support the hypothesized model, these higher order terms should not significantly increase the explained variance.

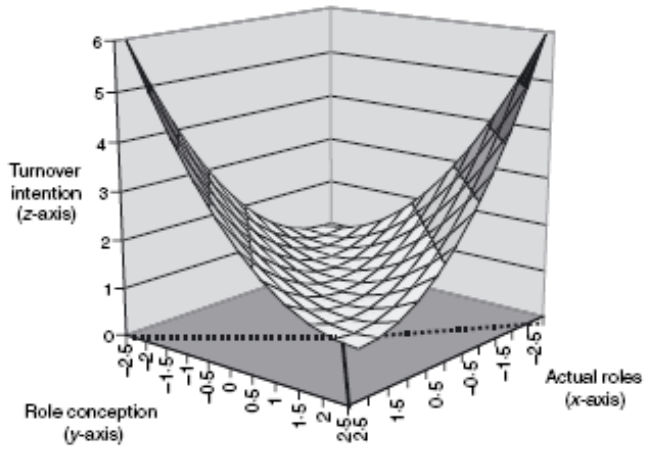

Figure 3. Illustration of the three-dimensional relationship between nurses' ideal role conception, actual role conception, and turnover intention. The straight line in the *xy*-plane illustrates the Y = X, while the dotted line illustrates Y = - X. Reprinted by permission of Dr. Takase and Wiley-Blackwell Publication, Inc.

Description of the Main Study Variables

Role Discrepancy

Nurses' perception of role discrepancy was measured by the Nursing Role Conception Scale (NRCS), which contained two-subscales (ideal and actual roles subscales). The NRCS used a 6-points likert scale ranging from "1" (*strongly disagree*), which indicated that nurses thought that the stated item was not important for the ideal nursing (ideal role subscale), and that the stated item was not applied in their actual work environment (actual role subscale), to "6" (*strongly agree*), which indicated that nurses thought that the stated item was important for the ideal nursing (ideal role subscale), and that the stated item was applied in their actual work

environment (actual role subscale). Reverse coding was done for the three negatively-stated items (items 2, 5, and 7 in tables 10a and 10b). Results of the paired *t* test showed that nurses rated their ideal role conception relatively higher than their actual role ($M = 4.26$, $SD = .51$) and ($M = 3.14$, $SD = .72$), respectively. The mean scores of both the ideal and actual role subscales are provided in table 9.

Table 9

Comparison between statistics of ideal and actual role subscales

Role subscale	Mean	SD	Skewness	Kurtosis
Ideal role	4.26	0.51	0.23	0.06
Actual role	3.14	0.72	0.18	0.40

Note: Maximum score = 6, higher scores indicate greater ideal role conception (Ideal subscale), and greater application of the stated item in work environment (Actual subscale).

Individual item-rating was different between items of the same subscale, and between the same items of the different subscales. For the ideal nursing role subscale, while the "*involvement in decisions affecting work conditions*" had the highest ideal role conception score ($M = 5.41$, $SD = 0.8$), "*delegating nursing assistants with activities of daily living*" had the lowest ideal role score ($M = 3.08$, $SD = 1.66$). For the actual role subscale, the item with the highest score was "*providing emotional support for patients during procedures or treatments*" ($M = 4.12$, $SD = 1.44$), whereas the item with the lowest score was "*freedom to initiate referrals to other health care providers without consulting patient's attending doctors*" ($M = 2.5$, $SD = 1.55$). Detailed description of the individual item-rating for both the ideal and the actual role subscales are provided in tables 10a and 10b, respectively.

Table 10a

Description of individual item-rating of ideal role subscale

Item	Mean	SD	Skewness	Kurtosis
Contribution to patients' discharge	4.74	1.23	-1.15	1.22
Omitting patient education (reversed)	3.28	1.72	0.17	-1.22
Delegating patients' daily activities	3.08	1.66	0.27	-1.18
Decision affecting work conditions	5.41	0.80	-1.21	0.68
Decisions of hospital support (reversed)	4.67	1.39	-0.82	-0.36
Delegating patients' hygiene measures to nursing assistants	3.14	1.70	0.18	-1.30
Carry out doctor's orders (reversed)	4.22	1.62	-0.45	-1.04
Developing patient's care plan	5.23	1.00	-1.54	2.74
Providing patients' emotional support	5.37	0.80	-1.10	0.64
Freedom to initiate referrals	3.54	1.60	-0.11	-1.15

Note: Maximum score = 6, higher scores indicate greater ideal conception of the stated item.

Table 10b

Description of individual item-rating of actual role subscale

Item	Mean	SD	Skewness	Kurtosis
Contribution to patients' discharge	2.85	1.62	0.35	-1.13
Omitting patient education (reversed)	3.00	1.62	0.48	-0.88
Delegating patients' daily activities	3.64	1.52	-0.17	-1.01
Decision affecting work conditions	2.68	1.71	0.53	-1.17
Decisions of hospital support (reversed)	3.04	1.79	0.24	-1.34
Delegating patients' hygiene measures	3.40	1.62	0.04	-1.11
Carry out doctor's orders (reversed)	2.81	1.59	0.69	-0.67
Developing patient's care plan	3.38	1.56	-0.14	-1.15
Providing patients' emotional support	4.12	1.45	-0.65	-0.34
Freedom to initiate referrals	2.50	1.55	0.68	-0.80

Note: Maximum score = 6, higher scores indicate greater application of the stated item in work environment.

Also, a series of independent *t*-tests were conducted to compare nurses' perception of their ideal and actual roles according to certain demographic data of the study sample. Results of the independent *t*-tests did not reveal significant differences between the categories of the demographics, except for the categories of the period of nursing experience and period of the current ICU experience, using three years as a cut point in each, in terms of the ideal roles ($\leq$ 3 years/ > 3 years = 4.36/ 4.16, $p < .05$) and (4.35/ 4.16, $p < .05$), respectively. However, the differences were relatively small to support the presence of clinically significant differences.

Then, a series of paired *t*-tests were conducted to compare ideal and actual nursing roles within each category of the following demographics: Gender, level of education, ICU specialty, age, period of professional nursing experience, and the

period of current ICU experience. Table 11 provides the results of the nurses' conception of their ideal and actual nursing roles classified according to the demographics of the study sample.

Table 11

Ideal & actual nursing role conceptions according to participants' characteristics

characteristic	Ideal	actual	*t*- value[a]*
Gender			
Male	4.25	3.06	9.06
Female	4.28	3.19	10.12
Level of education			
Bachelor	4.26	3.18	12.94
Master	4.50	2.63	4.02
ICU Setting			
SICU-1st floor	4.33	3.33	5.21
SICU-3rd floor	4.18	2.9	5.75
CCU	4.29	3.3	3.27
NICU	4.17	2.74	5.54
Burn unit	4.29	2.97	4.79
MICU	3.95	3.16	3.17
PICU	4.75	3.30	9.40
Neonatal-ICU	4.22	3.09	5.59
Age			
22 - 26 years	4.36	3.19	9.97
27 - 46 years	4.16	3.09	9.12
Nursing Experience			
≤3 years	4.36	3.14	10.60
> 3 years	4.16	3.15	8.54

a: df=113
* All the values are significant at $p < .01$

Table 11 cont.

Ideal & actual nursing role conceptions according to participants' characteristics

characteristic	Ideal	Actual	*t*- value[a]*
Period of current ICU Experience			
≤3 years	4.35	3.11	11.02
> 3 years	4.16	3.19	8.08

a: *df*=113
* All the values are significant at $p < .01$

Depressive Symptoms

The Center for Epidemiologic Studies Depression Scale (CES-D) was used to measure nurses' reported level of depressive symptoms, which used a 4-points likert scale ranging from "0" indicating that the stated item was *"rarely, or none of the time,"* felt or behaved by the participant within the week before the interview, to "3" indicating that the stated item was "*most of the time, or all the time,"* felt or behaved within the week before the interview. Reverse coding was conducted for the four negatively-stated items (items 4, 8, 12, and 16).

For the CES-D, the total score was considered, not the mean score, which ranged from 0 to 60 (total of 20 items), with the higher scores indicating the presence of more depressive symptoms. Nurses reported having a comparatively high level of depressive symptoms ($M = 26.68$, $SD = 10.99$) with a range between 1 and 54. On the other hand, while the item "*I was happy*" (reversed) had the highest score ($M = 1.83$, $SD = .97$), the item "*I felt that people dislike me*" had the lowest score ($M = .7$, $SD = .9$). Also, only 17 participants (14.9%) were below the cut point score for the presence of depressive symptoms (i.e. 16) (Radloff, 1977), and 23 participants (20.2%) reported having moderate depressive symptoms (16-22). Most importantly, 74

participants (64.9%) reported having severe depressive symptoms (23-60). Detailed item-rating of the CES-D is provided in table 12.

Table 12

Description of individual item-rating of the CES-D

Item	Mean	SD	Skewness	Kurtosis
Being bothered by anything	1.43	1.00	1.43	-1.01
Poor appetite	1.23	0.99	0.31	-0.93
Unable to shake off blues	1.39	0.97	0.24	-0.90
Felt good like others (reversed)	1.57	1.00	-0.03	-0.04
Unable to keep mind focused	1.43	0.97	0.17	-0.92
Felt depressed	1.63	1.02	-0.20	-1.06
Felt everything done was an effort	1.75	0.95	-0.36	-0.74
Felt hopeful about future (reversed)	1.73	1.02	-0.36	-0.99
Thought own life had been a failure	0.98	1.00	0.62	-0.78
Felt fearful	1.08	1.04	0.51	-0.96
Sleeping was restless	1.54	1.04	-0.02	-1.16
Was happy	1.83	0.97	-0.25	-1.02
Talked less than usual	1.12	0.87	0.41	-0.50
Felt lonely	1.18	1.00	0.38	-0.93
People were unfriendly	1.10	0.99	0.35	-1.03
Enjoyed life	1.74	1.03	-0.24	-1.11
Had crying spells	0.82	0.89	0.95	0.06
Felt sad	1.29	1.01	0.28	-1.00
Felt that people dislike me	0.70	0.90	1.01	-0.11
Could not get going	1.15	1.10	0.51	-1.06

Note: Maximum score = 3, higher scores indicate the presence of more depressive symptoms felt or behaved within the week before the interview.

Turnover Intention

Nurses' positional and professional turnover intention were measured using the modified withdrawal Cognition Scale (WCS), which used five items with a 6-points likert scale ranging from "1" indicating that nurses strongly disagreed to the stated item and wanted to stay in their position or profession, to "6" indicating that nurses strongly agreed to the stated item and wished to leave either their positions or profession. The higher mean scores indicated higher turnover tendency among nurses. Reverse-coding was conducted for the two negatively-stated items (items 4 and 5).

The mean turnover intention score was 3.59 (*SD* = .97), with the item of "*Searching a non-nursing job*" had the highest score (*M* = 4.01, *SD* = 1.71), and the item of "*Intention to quit organization*" (reversed) had the lowest score (*M* = 3.14, *SD* = 1.59). On the other hand, a paired *t*-test was run to test if there is a statistical difference between the means of nurses' professional (three items) and organizational (two items) turnover intention. Nurses' professional turnover intention was found to be significantly higher than their organizational turnover intention (3.71 vs. 3.40, $p < .05$). Table 13 provides a detailed description of the items of the modified WCS.

Table 13

Description of individual item-rating of the modified WCS

Item	Mean	SD	Skewness	Kurtosis
Thinking of quitting organization	3.67	1.79	-0.22	-1.34
Searching a non-nursing job	4.01	1.71	-0.41	-1.10
Thinking of quitting nursing	3.98	1.80	-0.46	-1.17
Intention to quit organization (reversed)	3.14	1.59	0.41	-0.90
Intention to quit nursing (reversed)	3.16	1.64	0.35	-1.14

Note: Maximum score = 6, higher scores indicate greater tendency among the participant to leave either the position or the profession.

Protection of Human Subjects

The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1978; cited in Lobiondo-Wood & Haber, 2002) identified (a) Respect for person: right of self determination; (b) beneficence: the obligation to do no harm and maximize the benefits; and (c) justice: human subjects should be treated fairly, as the three ethical principles to be followed for the purpose of protecting the human subjects included in research studies. All the three principles were applied within this study.

To achieve the first principle, adequate information were given to the participants, through the informed consent, with regard to the study's objectives and risks so that they can voluntarily decide if they want to participate in the study or not. Because participants were employees, their main concern was to make sure nothing would affect their positions. So, they were told that refusal to participate would not affect their work positions, and that they could withdraw from the study at any time. However, all of this information, as well as other information, were conveyed to the participants through the informed consent that they needed to sign in order to be enrolled in the study.

To achieve the second principle, participants were told that the study had no physical or psychological harm. Also, they were told that they would have no immediate benefits by participating in the study except helping to expand knowledge with regard to nurses' role discrepancy. Because participants were employees, special assurance was needed to guarantee their confidentiality and privacy. So, participants were assured that their current and future position status would not be affected. Also, participants were told that their privacy, anonymity, and confidentiality are guaranteed through the following:

1. Numbers (codes) were used to identify them instead of their names.
2. A private room was assigned for the time of answering the questionnaires.
3. Closed envelopes were used for handing the questionnaires between them and the data collector.
4. The completed questionnaires and any computer discs related to the study were kept in a locked cabinet at the school of nursing, with nobody had access to them but the researcher and the committee members.
5. IRB approvals of both JUH and CWRU have been obtained before starting the data collection process.

To achieve the third principle, all the eligible RNs were invited for the voluntary participation without discrimination based on race, gender, or religion. Also, participants were informed about the methodology of this study with regard to that all participants who accepted participation had to go through the same process, and that the study had one group only with no other control groups.

Chapter Four

Results and Discussion

The purposes of this study were (a) to examine the concepts of the role discrepancy, depressive symptoms, and turnover intention among the ICU registered nurses (RNs) in Jordan; and (b) to examine the relationship of role discrepancy with both RNs' level of depressive symptoms and their turnover intention. The person-environment fit theory (French et al., 1974) was adopted to guide this study. This chapter presents, in two main sections, the results of this study along with the discussion of those results. The results of answering the three main research questions are presented in the first section, specifically, the results of the paired *t*-tests, the polynomial regression analyses, and the answers of the open-ended question. The second section includes the discussion of the study results presented according to the research questions. Using a p value < 0.05 as a cut point for the statistical significance, the statistical program SPSS-16 for Windows was used for the data analysis.

Results

Before running the data analysis, data screening and examination of the assumptions of the statistical tests were conducted. For instance, data were screened for the out of range values using descriptive statistics, as well as for the assumptions of normality, linearity, outliers, as well as regression diagnostics.

Starting with the normality, the values of skewness and kurtosis for all of the main study variables were within the required values around zero (Tabachnick & Fidell, 2001), except the variables of age, period of nursing experience, and period of experience at the current ICU. Those three variables had slightly higher values (less than 2.0) of either skewness or kurtosis, or both, for reasons concerning the

characteristics of nurses who were working in Jordan at the time of data collection (most of them are newly graduated nurses). Although this slight violation of the normality assumption may weaken the results of the regression analysis, it should not affect the results of the analysis (Tabachnick & Fidell, 2001). The variable of "number of night shifts per month" had extreme values of skewness = 3.05 and kurtosis = 14.31. The reason behind that was the policy of the JUH, which required nurses to work an average of 7-9 night shifts per month. However, four nurses reported that they were making around 20 night shifts per month, but that was upon their request.

The P-P plots were used to test for normality, linearity, and outliers. The results showed that the data fulfilled those assumptions. For the outliers, the researcher used the cook's D value of > 1.0 for the Y axis, and Central leverage value of > 3 (k + 1)/ n for the X axis, where k = number of variables, to test if those outliers were influential or not. Results did not reveal any influential data point.

Other regression assumptions were tested; Zero mean, independence, and homoscedasticity. The zero mean assumption was tested by checking the mean and SD of the standard residuals at the residual statistics of the regression test output. The results fulfilled this assumption by having the mean = 0 and the SD = 1. To test for the assumption of independence, Durbin-Watson value was checked, which should be between 1.5 and 2.5. Results of the Durbin-Watson values were within the required range, which fulfilled this assumption. Also, the scatter plot was checked to test for the assumption of homoscedasticity, which ideally should have the residuals randomly scattered around the point of 0, at the horizontal line, with a relatively even distribution on both sides. The scatter plots of this study, showed partial

homoscedasticity, which fulfills the assumption. However, according to Tabachnick & Fidell (2001), it is permissible to violate this assumption.

Finally, tolerance and value inflation factor (VIF) were checked to assess the multicollinearity, which reflects a high correlation between the independent variables that makes them measure the same thing, and limits the size of the explained variance. Ideally, tolerance should exceed .20 and VIF should be less than 10. The results of this study revealed multicollinearity between Age and the period of professional nursing experience.

Starting with the correlation between the main study variables, table 14 provides the means and the standard deviations of the main study variables, as well as the correlation between those variables. Detailed description of each variable was provided before. The only significant correlation was the correlation between nurses' ideal role conception and their level of depressive symptoms (r = -.19, p < .05).

Table 14

Means, SDs, and the correlations between main study variables

Scale	Mean/*SD*	1	2	3	4
Ideal role conception	4.27/ 0.51				
Actual role	3.14/ 0.72	-.01			
Depressive symptoms	26.68/ 10.99	-.19*	-.01		
Turnover intention	3.59/ 0.97	-.01	-. 12	-. 18	

N= 114. * Correlation is significant at the 0.05 level (two-tailed).

Answers of the Study Questions

Q1. Do Jordanian ICU RNs perceive discrepancy between their ideal and actual nursing roles?

To test if the Jordanian nurses perceived a role discrepancy or not, a paired *t*-test was conducted to compare their perception of their ideal and actual nursing roles. Nurses rated their ideal role conception significantly higher than their actual engagement in those roles (ideal role conception/ actual role conception = 4.27/ 3.14, t (113) = 13.53, $p < 0.01$). On the other hand, the items of "*Decision making on working conditions policy*" (5.41/ 2.68) and "*Decision making on patients' hospital discharge*" (4.74/ 2.85) had the highest levels of role discrepancy. In addition, while eight items had a positive discrepancy level (ideal - actual), the items of "*delegation of patient hygiene"* (3.08/ 3.64) and "*delegation of patients' daily activities"* (3.14/ 3.40) had negative discrepancy levels. Table 15 provides a list of discrepancy levels with items arranged in a descending order.

Table 15

Detailed NRCS item discrepancy levels

Item	Means			
	Difference	Ideal	Actual	*t* value [a*]
Total	1.12	4.26	3.14	13.53
Decision making concerning work conditions	2.73	5.41	2.68	15.03
Decision making concerning patient discharge	1.89	4.74	2.85	9.36
Developing patient care plan	1.85	5.23	3.38	10.99
Decision making concerning hospital support	1.63	4.67	3.04	7.14
Carrying out doctor's orders	1.41	4.22	2.81	7.26
Providing emotional support	1.25	5.37	4.12	8.78
Freedom to initiate referrals	1.04	3.54	2.50	5.40
Omission of patient education	0.28	3.28	3.00	1.38
Delegating patient hygiene measures	-0.26	3.14	3.40	-1.25
Delegating patient daily activities	-0.56	3.08	3.64	-2.61

Note: Difference = ideal role conception – actual role conception.
a: $df = 113$. *All values are significant at $p < 0.01$.

Q2. How much of the variance in the Jordanian ICU RNs' turnover intention is explained by role discrepancy?

It was assumed that the relationship between nurses' ideal role conception, their actual nursing role, and their turnover intention is curvilinear, and that the person-job fit (low discrepancy level) contributes to low turnover intention among RNs. To test for those two assumptions, the polynomial regression analysis was used (explained in chapter 3). To run this analysis test, the linear terms of the ideal role conception and their actual role (C & A, respectively) were entered in the first step of

the hierarchical regression. In the second step, the curvilinear terms (i.e. C^2, A^2, and CA) we

re added. Neither step showed any significant variance with the nurses' turnover intention (R^2= .014, F = 0.80, p = .45) and (R^2 = .03, F = 0.66, p = 0.66), respectively, which means that neither assumption could be supported statistically. Table 16 summarizes the results of the polynomial regression analyses for the relationship of role discrepancy with both turnover intention and depressive symptoms.

Table 16

Results of the polynomial regression analysis (role discrepancy with turnover intention and depressive symptoms)

	linear model			Curvilinear model (C^2, A^2, and CA were added to the linear model)					
Relationship	C	A	R^2	C	A	C^2	CA	A^2	R^2
Turnover intention	-.01	-.12	.02	-.06	.04	.09	-.09	.03	.03
Depressive symptoms	-.19*	.01	.02	-.16	.04	.13	.07	-.02	.01

*Correlation is significant at $p < .05$. C: Ideal role conception. A: Actual role.
Note: none of the R^2 is significant at $p < .05$

Q3. How much of the variance in the Jordanian ICU RNs' depressive symptoms is explained by role discrepancy?

Again, it was hypothesized that the relationship between nurses' ideal role conception, their actual nursing role, and their reported level of depressive symptoms is curvilinear, and that the person-job fit (low discrepancy level) contributes to low level of depressive symptoms among RNs. The two above mentioned steps of the polynomial regression analyses were conducted, with nurses' reported level of

depressive symptoms serving as the dependent variable. Neither step revealed a significant variance with the nurses' reported level of depressive symptoms (R^2 = .04, F = 2.06, p = .13) and (R^2 = .06, F = 1.28, p = .28), respectively (see table 16). Statistically, neither hypothesis could be supported.

Data of the Open-Ended Question

The notes provided by the participants as answers to the open-ended question, "*What else that we did not ask that you think we need to know",* at the end of the questionnaire, were gathered and sorted out. Fifty nine nurses (52%) preferred not to answer this question. Results revealed seven different themes that were reported by the participants, among which "*hospital support services*" had the highest frequency (24 nurses). The comment with the lowest frequency was the "*nursing public image,*" which was reported by six nurses only. Table 17 lists those comments and their frequencies followed by a brief description of each theme.

Table 17

Comments reported by nurses and their frequencies

Comment	Frequency
Hospital support services	24
Relationship with colleagues and managers	22
Workload and compensation	18
Work environment	11
Nursing role and nursing job description	10
Night shift and shift change	8
Nursing public image	6

Hospital support services

Many comments were provided by the nurses under this category, all of which were going toward the same direction of lacking certain support services. According to the participants, even some basic services were either weak or absent like food, transport, parking, advanced machines, nursing orientation, nursery for children, training, and continuous education. Comments regarding other services like the internet access, library, and support to continue the higher education were also provided. Other nurses used general statements to express their feelings like "*no advantage in this hospital to support nurses*" and "*nurses are not supported against bad circumstances*".

Relationship with colleagues and managers

It was noticeable that participants were concerned about their relationship with their colleagues and managers. According to the nurses, the "*weak management*", the conflicts between nurses themselves, and the lack of appreciation for their work made some of them to "*feel depressed*". Also, some of the nurses reported some administrative issues as the lack of application of the hospital policies, and the lack of independent nursing management.

Workload and compensation

Nurses believed that their workload was heavy, overwhelming, and beyond their emotional and physical capabilities. At the same time, nurses believed that their compensation (salary and incentives) was not comparable to their work and its dangerousness. Some of them mentioned nursing shortage as a direct cause for that heavy workload and for the imbalanced nurse-to-patients ratio. An example of those statements said in this regard was "*salary is not good for this bad job*". The nurses' satisfaction with their salary was 5.6 out of 10.

Work environment

The heavy workload was combined many times with the characteristics of the work environment, which is, according to the nurses, dangerous and does not offer them requirements to provide a good patient care. Nurses requested more administrative attention toward the occupational hazards (e.g., X-ray exposure, needle stick injury) and toward the different safety precautions. "*Nursing job is a good job, but the work environment is not*" is a statement that represents the feelings of the nurses toward their work environment. Within this stream, it is useful to mention that nurses' satisfaction rate with the work environment was the lowest among the satisfaction questions (4.2 out of 10)

Nursing role and nursing job description

This section was of great importance because it fits the most within the stream of this study. The "*vague nursing job description*" and the lack of distinction between the RNs' roles and the roles of the nursing assistants were the most important within this category. Nurses reported doing tasks that are different from what they were thinking during their study. Being asked to do a "*non-nursing job*" and "*do nurses feel playing a good role in planning patient care?*" are examples of the statements in this category, which made one nurse to believe that "*nursing is going backward*".

Night shift and shift change

Eight nurses tried to raise the issue of the rotating shifts and the fact that night shift is an issue for the nurses especially because the night shift at the JUH is a 10-hours shift. While some nurses requested more days off for making the night shifts, other nurses said that night shifts should be considered as an over time. Night shift was believed, by the participants, to cause less sleep time, and the rotating shift was believed to cause instable social life.

Nursing public image

The image of nursing in the public was present within the comments of the nurses. Six nurses believed that the public community is looking to nursing as a lower class profession. While one participant said that "*the community does not respect the nurse so much*", another participant recommended "*explaining to the public about nurses' roles because they do not know*".

Discussion

Q1. Do Jordanian ICU RNs Perceive Discrepancy between their Ideal and Actual Nursing Roles?

Consistent with the first assumption of the theory, a statistically significant difference between nurses' ideal role conception and their actual role was found, which means that nurses reported having the perception of role discrepancy. Even though Jordanian nurses' levels of ideal and actual role conception were lower (4.26 and 3.14) than that reported by the Australian nurses (5.02 and 4.01) (Takase et al., 2006b), the amount of discrepancy was higher (1.12 vs. 1.01, respectively). This may reflect a difference in the way of thinking between the nurses in both countries in terms of what represents the ideal and the actual nursing roles. Also, the significant perception of role discrepancy was consistent with Black (2002) who found the US nurses to rate their ideal role conception higher than their actual role.

Concerning the individual items, among the top three items of the highest discrepancy levels, only one item *"decision making concerning work conditions"* was common with the items reported by Takase et al. (2006b). The other items were *"decision making concerning patient discharge"* and *"developing patient care plan"*. However, having the largest discrepancy levels in the items where decision making was included calls for more attention to the nurses' desire toward being involved in

the process of decision making in general, and points out to how much they feel frustrated in this regard.

The other significant result that is different from Takase et al. (2006c) was the presence of two items with a negative discrepancy level, which meant that the actual roles were rated higher than the ideal roles. Those items were the items of "*delegating patient hygiene measures*" and "*patient daily activities to assistant nurses*". This extraordinary result may be due to the high workload at the JUH as perceived by the nurses, or due to the nature of the critical cases in the ICUs, where many of the nursing interventions can not be delegated and have to be conducted by the RNs or request the presence of the RNs.

Consistent with the literature, this role discrepancy was considered a source of stress for the nurses. However, contrary to the study assumptions, this role discrepancy did not significantly correlate with either nurses' level of depressive symptoms or their turnover intention. This particular result is totally the opposite to the results of Takase et al. (2006b) who found significant relationship between nurses' perception of role discrepancy and their turnover intention. Again, these results need to be taken with caution due to the low validity and reliability of the study instruments.

Q2. How much of the Variance in the Jordanian ICU RNs' Turnover Intention is explained by Role Discrepancy?

Opposing to the study assumptions, results of this study did not reveal a statistically significant relationship between nurses' role discrepancy and their turnover intention. Also, results could not support the hypothesized curvilinear relationship between them. This means that role discrepancy could not be used to explain the variance in the Jordanian nurses' turnover intention. Nonetheless, it was

remarkable that Jordanian nurses were found to have more intention for turnover than the Australian nurses (Takase, 2005a), giving that both studies used the same scale, which possibly reflects more stress in their work environment. The intention to leave nursing was also reported by English, Scottish, and US nurses (Aiken et al., 2001), but with a lesser degree than the Jordanian nurses in this study.

To compare with a Jordanian study, Mrayyan (2006) reported that the Jordanian nurses' turnover rate was 18%, but this study found that 57.9% of the nurses scored turnover intention equal or greater than the average (3.59 out of 6). So, unless serious interventions concerning recruitment and retention of nurses are stemmed, we can imagine the magnitude of the future problems Jordanian hospitals would confront if that turnover intention percentage became true turnover rate.

Another outstanding result was the high nurses' professional turnover intention, which was found to be significantly higher than their organizational turnover intention. This points out to the fact that it is not only the work environment that drives nurses toward thinking to quit nursing, but also nursing as a profession seems to be not capable to meet nurses' ambitions and expectations, which makes them think to leave nursing to another profession.

Finally, the lack of relationship between Jordanian nurses' perception of role discrepancy and their turnover intention is contrary to Takase et al. (2006b), who reported not only a relationship that is significant, but also a relationship that can be better explained by a curvilinear relationship, which could not be supported in this study. Due to the low validity and reliability of the study instruments, these results need to be cautiously taken. Though, this area of research still in need for more exploration in different countries through including larger sample size, and comparing nurses from different hospital units.

Q3. How much of the Variance in the Jordanian ICU RNs' Depressive symptoms is Explained by Role Discrepancy?

Again, contrary to the study assumptions, results of this study did not reveal a statistically significant relationship between nurses' role discrepancy and their level of depressive symptoms. Also, results could not support the hypothesized curvilinear relationship between them, which means that role discrepancy could not be used to explain the variance in Jordanian nurses' level of depressive symptoms. Nevertheless, it was note-worthy that the level of nurses' depressive symptoms was relatively high (M = 26.68 out of 60), which is consistent with Baba et al. (1999) who measured depressive symptoms among nurses from the Caribbean (M = 31.4), a group of developing countries similar to Jordan, which may explain this similarity, giving that both studies used the CES-D scale to measure depressive symptoms. However, this level of depressive symptoms was found to be higher than what was reported in many nursing studies that, using different reliable depression scales, measured depressive symptoms among nurses, (Bennett et al., 2001; Glass, McKnight, & Valdimarsdottir, 1993; Ruggiero, 2003; Su et al., 2007), as well as studies that measured depressive symptoms among other professions as physicians in UK (Coomber et al., 2002), and employed population in Canada (Wang & Patten, 2001). Participants in all of those comparison studies reported very low to moderate level of depressive symptoms, in addition to small percentages of severe depressive symptoms.

The prevalence of severe depressive symptoms was striking too if compared with the previous studies. While 64.9% of the nurses in the current study scored higher than the cut point of the severe depressive symptoms, only 23% of the US nurses met the criteria for mild, moderate, and severe depressive symptoms (Ruggiero, 2003), and 27.5% of the Taiwanese nurses reported having depressive

symptoms (Su et al., 2007). However, there is a difference between Jordan, as a developing country, and those two developed countries, at least, in terms of the nurses' working conditions, and the development of the nursing profession. Regardless if these results seem to be exaggerated by the participants or not, or if the nurses had some carelessness while they filled out their questionnaires, it was apparent that nurses in the developing countries are under more stress in their work, and more attention needs to be directed toward them.

The CES-D scale was the only reliable scale in this study ($\alpha = .88$). While investigating the reasons for low reliability results of the other instruments, the attention was toward not having the Arabic version of the questionnaire. However, the good reliability of this scale turned the attention away from this issue toward other possibilities such as the sample size, or the characteristics of the other scales (e.g., newly developed questionnaires, the phrasing of the scales).

On the other hand, rare are the studies that have investigated the relationship between the nurses' role discrepancy and their psychological behaviors. However, the lack of a relationship, in this study, between nurses' role discrepancy and their psychological status (represented by depressive symptoms) is consistent with Black (2002), who reported not having a significant relationship between the US nurses' role discrepancy with their psychological status (represented by stress). However, due to the low validity and reliability of the NRCS, this particular result needs to be cautiously taken.

Finally, the relationship between nurses' perception of role discrepancy and their psychological status is an area of nursing research that is relatively novel, in which more research studies are needed especially those extending the sample size to include nurses from countries beyond the western countries.

Data of the Open-Ended Question

The reported themes revealed that Jordanian nurses had given the priority to many issues other than their nursing role and job description. This could indicate how much nurses are preoccupied with their present situations, and how much they think they are deprived in terms of their rights. If we combined this to the elevated level of depressive symptoms reported by those nurses, we can draw a better picture of the situation. This means that Jordanian nursing administrations need to have more effort to elevate the psychological status of their nurses, starting with including them in the decision making concerning nursing environment. Also, the reported themes can be used in the future research to formulate questionnaires concerning nurses' satisfaction and psychological status.

Chapter Five

Summary

The purposes of this study were (a) to explore the concepts of the role discrepancy, depressive symptoms, and turnover intention among the Jordanian ICU registered nurses; and (b) to explore the relationship of role discrepancy with both nurses' depressive symptoms and their turnover intention. To achieve the purposes of this study, a cross-sectional descriptive correlational research design was adopted using a convenience sample of 114 RNs, who met the inclusion criteria, working at the JUH, a major teaching hospital in Jordan. Descriptive statistics, a series of paired *t*-tests and independent *t*-tests, and polynomial regression analyses were conducted. The person-environment fit theory (French et al., 1974) was adopted as the theoretical base for this study. This chapter is going to summarize the characteristics of the study sample, conclude the findings of this study, draw its limitations, present implications for the nursing knowledge, education, and for both the nursing administrators and policy makers. At the end, recommendations for the future related nursing research studies are provided.

Brief Setting and Sample Description

The intensive care units of the Jordan University Hospital (JUH) were chosen as a setting for conducting this study. The JUH is a major teaching hospital in Jordan, which is considered among the oldest and the biggest hospitals in Jordan with a capacity of 540 beds including more than 50 ICU beds in eight units. The total number of the RNs who were working at the ICU during the time of this study was 138. After determining their eligibility, eligible RNs were invited to voluntarily participate in this study.

The total sample size was 114 from eight different ICU units, among which 63.2% were females, 56.1% singles, and 93.9% were holding the bachelor nursing degree. The average age of the participants was 27.1 years, with an average period of experience 4.7 years in nursing, and 3.9 years in the current ICU. Most of the RNs were doing shift rotation with an average of 7.8 night shifts per month. Also, 40.4% of the nurses were interviewed during the night shift as it was, relatively, the least busy shift compared to the other shifts. On a scale of 0-10, nurses rated their satisfaction with their salary, work, and work environment with an average rate of 5.6, 5.4, and 4.2, respectively.

Concerning the major study concepts, nurses rated their ideal role conception, on a scale of 1-6, higher than their actual role (4.26 vs. 3.14, respectively, $p < .05$). Also, nurses' level of depressive symptoms was reported to be 26.68 out of 60, with a range of 1-54. Finally, participants' average turnover intention was reported to be 3.59, out of 6, with their professional turnover intention higher than their organizational turnover intention (3.71 vs. 3.4, respectively, $p < .05$).

Pertinent Findings

Results of this study revealed a statistically significant difference between Jordanian nurses' ideal role conception and their actual roles, which meant that the Jordanian nurses had the perception of role discrepancy. This perception of role discrepancy was significant within every single category of the demographic characteristics of the participants. However, only period of nursing experience and period of experience in the current ICU (three years was used as the cut point for both variables) had significant differences between their categories in terms of role discrepancy.

The perception of role discrepancy was not found to have a statistically significant relationship with either nurses' level of depressive symptoms or their turnover intention, which indicated that role discrepancy could not be used to explain the variance in either nurses' depressive symptoms or their turnover intention. Also, against what was hypothesized by this study, the curvilinear relationship was not found useful to explain the relationship between the components of the role discrepancy with either depressive symptoms or turnover intention. At the level of the individual items of the role discrepancy, it was clear that Jordanian nurses felt deprived when it came to making decisions in general, and even worse when the decision is regarding their work conditions.

Concerning the other study concepts, nurses' reported level of depressive symptoms was found to be relatively high, with the level of the majority of the participants higher than the cut point for the presence of the severe depressive symptoms. Even though Jordanian nurses' results of depressive symptoms were higher than what was reported in the literature of the western countries, their results was comparable to the results of depressive symptoms among nurses from another developing country. In general, Jordanian nurses reported being psychologically tired, unhappy, and pessimistic about their professional future. Nevertheless, nurses' level of depressive symptoms was not found to have a significant relationship with their turnover intention, which was found to be high as well. On the whole, nurses reported that they were searching for a non-nursing job (professional turnover) rather than just searching to change their institutions (organizational turnover).

Limitations

The most important limitation was the low reliability and validity results of the NRCS and the modified WCS, which caused the results be taken with caution, and

limited the generalizability of the study results. This limitation was rationalized by the other limitations especially the relatively small sample size, and by the discrepancy between the language of the questionnaire and the native language of the participants (English vs. Arabic, respectively). Even though the sample size was calculated at the beginning of this study, it seemed to be insufficient to test the validity and reliability of the newly-developed instruments. Also, nurses seemed to be more toward accepting the Arabic version of the instruments despite their ability to understand the written English.

Due to the time constrain, the convenience sampling technique was adopted, which is known to limit the generalizability of the study results, and to hinder the ability to conclude a causal relationship between the study variables. Moreover, the sample was restricted to only one hospital as well as one category of the hospital units (i.e. ICU). So, the results of this study are applied merely to the participating nurses within those participating units at the JUH. In addition, no conclusions can be made regarding the differences between those ICU units and the other hospital units in terms of role discrepancy, depressive symptoms, and turnover intention. Similarly, no conclusions can be made regarding the differences between the ICU units in the JUH and the ICUs in the other Jordanian hospitals.

Concerning the condition of nurses during the data collection procedure, nurses were found to be very busy during their shifts, which reflect the heavy workload at those units. The data collector reported the need to visit the same unit many times to find nurses who are able to get 20 minutes for answering the questions of the study instruments. In addition, the lack of alternative techniques to contact nurses outside their work shift was considered a limitation for this study, because

nurses who are rush to answer the questionnaire are likely to do so with more carelessness.

Finally, all the nurses at the JUH were hired to do rotating shifts, and were required to work an equal number of night shifts (7-9 night shifts/ month), as most of the Jordanian hospitals do. Some of the nurses were working at the day shifts only due to certain circumstance, and some of them were working more night shifts upon their request. This made it inapplicable for the researcher to measure the effect of working at the night shift on the different variables of this study.

Implications

Nursing Knowledge

It is true that this study is not the first study to address the nurses' perception of role discrepancy. Though, it is the first to address the relationship of role discrepancy with both depressive symptoms and turnover intention. In addition, it is the first study to address nurses' perception of role discrepancy among the Jordanian nurses. The gained knowledge of this study is more relevant to nursing because the study asked nurses themselves to state their role conception from two different views, ideally and actually. Also, this study asked the nurses to report their turnover intention, unlike most of the nursing turnover studies that only report the official turnover rates. Such an approach should give nursing administrators an insight regarding nurses' future decisions, and respite them sometime to take steps before nurses' turnover intention develops be actions toward leaving nursing.

This study came to fill out a significant gap in the nursing literature regarding the nurses' perception of role discrepancy and its psychological and behavioral consequences particularly in countries other than the western countries. Measuring the level of depressive symptoms and turnover intention among the Jordanian nurses was

identified as another gap in the nursing literature that needed to be filled out. Also, this study tried to fill out the gap of not having studies to evaluate role discrepancy, depressive symptoms, and turnover intention among the ICU nurses with much literature reported the ICU as an extremely stressful unit for the nurses to work at. By piecing the information together, the researcher hoped to narrow the above-mentioned gaps.

The results of testing the validity and reliability of the study instruments are another contribution of this study to the body of nursing knowledge. The Nursing Role Conception Scale and the modified Withdrawal Cognition Scale could not be supported in terms of validity and reliability by this study, which necessitates further examinations of those two instruments. Different possible rationales were mentioned among which sample size and the English version versus the Arabic version of the instruments were the most important. On the other hand, the English version of the Center for the Epidemiological Scale-Depression scale was found to be reliable among the Jordanian nurses despite that English was not their native language, which should enable future nursing researchers to use it among Jordanian nurses instead of being obligated to use the translated Arabic version of the CES-D.

Finally, testing the person environment fit theory is considered as another contribution of this study to the nursing knowledge. Results did not support what was hypothesized by the theory including (a) the relationship of the misfit, between the persons and their environment, with their psychological and behavioral consequences (e.g., depressive symptoms and turnover intention); and (b) the curvilinearity of such kind of relationships. However, the lack of support for those hypotheses through this study does not confirm their absence as the results of validity and reliability of the study instruments were not encouraging. Moreover, further studies are needed before

going to the final judgment of the presence or the absence of such a relationship. Those studies will need larger sample sizes, samples from different cultures, along with more valid and reliable instruments.

Education

Nursing literature has related the problem of nurses' role discrepancy to the nature of nursing education at nursing schools. This seems to be true for all the nursing schools all over the world. Nursing students should be informed, during their education that what is taught as the ideal practice role and what role expectations are in health care systems are not congruent. Students should be assisted in developing flexibility in roles and given tools to manage role discrepancy.

This is not a pessimistic invitation to lower the functional level of professional nursing profession, or to restrict the roles of nurses. Rather, this is an invitation (a) to be realistic about practice environments, (b) to assist students in managing their reality of practice as graduates; (c) to address the image, status and issues facing the nursing profession, and (d) to provide students with strategies for dealing with problems of role discrepancy and reality shock when they actually enter the practice field.

By doing so, we can ask new staff nurses to be part of implementing change in professional practice and the work environment. Failure to do so, has the potential to perpetuate the nursing shortage and the same empty cycle of professional nurses who graduate from the nursing schools, face reality shock in practice, and then start thinking about leaving either their positions or their profession.

Practice Nursing Administrators and Policy Makers

Even though role discrepancy was not found to be significantly related to either nurses' level of depressive symptoms or their turnover intention, the results of

the individual study concepts deserve to stop at. The presence of the relationships between those three concepts should not be ignored especially with the low validity and reliability results of two of the used study instruments. Instead, the study results should be alarming to the nursing administrators and the health care policy makers.

Nursing administrators are highly required to set the policies that are capable to accomplish nurses' desires of more contribution in the decision making, especially decisions concerning their work environment and work conditions. Setting an obvious job description seemed to be the most important step for the nursing administrators to start with as many nurses reported the lack of such description. Also, the findings asserted that role discrepancy was perceived by every single category of the nurses' demographic characteristics, which should make the nursing administrators, during planning and training, recognize that it is not a problem of certain category of nurses. Rather, they should focus on the general population of the RNs and not only certain categories of them.

Finally, health policy makers, particularly in Jordan, need to know that without immediate actions, more nurses will be leaving the profession, and the current moderate turnover rates will be dangerously replaced. More respect to nurses' desires of contributing to the decision making of their work conditions, effective manipulation of the nurses' work environment, more incentives and other retaining strategies, and obtaining a periodic feedback from the nurses are only examples of those immediate actions that are required with necessity.

Recommendations

While the concept of depressive symptoms was fully explored in the nursing literature, further research studies, quantitative and qualitative, are needed to more fully explore the concepts of nurses' role discrepancy and turnover intention.

However, more clarifying definitions of those two variables are needed in nursing as the current definitions seemed to be unable to include all the related components of those two concepts within the nursing work environment.

The researcher highly supports Takase et al. (2006b) in recommending more research studies in the field of nurse's perception of role discrepancy and its relationship to different psychological and behavioral consequences. Furthermore, it is recommended to replicate this study among nurses in Jordan and other developing countries but with a larger sample size to avoid the limitations of this study. By doing so, the newly-developed NRCS and the modified WCS will be given another chance for their validity and reliability to be retested, and the Arabic version of the CES-D will be given the chance to verify its relatively good reliability results. Also, it is recommended to translate the NRCS and the modified WCS to the Arabic language for the purpose of comparing both the Arabic and English versions.

Among the other research recommendations is to compare the perception of role discrepancy, depressive symptoms, ant turnover intention among nurses from different hospital units, as between ICU nurses and nurses from regular medical and surgical floors. Also, it is recommended to compare those variables among nurses from different health care sectors (e.g., public, private, and teaching). Finally, Research studies to compare role discrepancy among nurses from different countries are also recommended.

Appendix A

Study Survey

Section one: Demographic Data

1- Gender:
- Male.
- Female.

2- Current Age: …… years

3- Marital Status:
- Single.
- Married.
- Divorced.
- Widow.

4- Years of Professional Nursing Experience: …… years

5- Years of ICU experience: …… years

6- Highest Level of Education
- Bachelor of Science.
- Master of Science.

7- Current work setting:
- SICU- 1st floor.
- SICU- 3rd floor.
- CCU.
- Neuro- ICU.
- Burn unit.
- MICU.
- PICU.
- Neonatal ICU.

8- The shift at which this questionnaire is being filled out:
A. Day
B. Evening
C. Night

9- Number of night shifts/ months: …… nights

10- On a scale of 0-10, how satisfied are you with your salary? …….

11- On a scale of 0-10, how satisfied are you with your work? …….

12- On a scale of 0-10, how satisfied are you with your work environment? ……

Section Two: Nurses' Role Conception Scale

A- In this section, you are asked to rate **how you want to perform your nursing roles in the areas of decision-making and patient care**. Please answer the questions using the rating system indicated below and circle the corresponding number.

Rating System

6= Strongly agree	5= Agree	4= Agree Somewhat	3= Disagree somewhat	2= Disagree	1= Strongly disagree

Ideally, How I Want to Perform

No	Question	Answer Box Agree Disagree
1	I should contribute to decisions regarding the hospital discharge of patients.	6 5 4 3 2 1
2	I should omit patient education when it causes delays in the care of other patients.	6 5 4 3 2 1
3	I should not delegate division two nurses (practical nurses) or nurse aids to assist patients with activities of daily living.	6 5 4 3 2 1
4	I should be involved in making policy decisions affecting my working conditions.	6 5 4 3 2 1
5	I should not be involved in making policy decisions concerning the hospital support services on which my work depends.	6 5 4 3 2 1
6	I should perform some of the technical procedures for a patient even if they could be done by ancillary personnel such as division two nurses (practical nurses).	6 5 4 3 2 1
7	I should not assign personal hygiene measures for patients to other personnel including division two nurses (practical nurses) or nurse aids.	6 5 4 3 2 1
8	The primary focus of my role is to carry out the doctor's orders.	6 5 4 3 2 1
9	I, as a division one nurse (Registered nurse), should spend most of my time providing direct patient care.	6 5 4 3 2 1
10	I should be responsible for developing a patient nursing care plan in collaboration with other health professionals.	6 5 4 3 2 1
11	I should provide sufficient emotional support for patients while conducting procedures or treatments.	6 5 4 3 2 1
12	I should have the freedom to initiate referrals to other health care providers without consulting with the patient's attending doctors.	6 5 4 3 2 1

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B- This section is similar to the previous one in which you were asked to rate how you would like to perform your nursing roles. In this section, however, you are asked to rate **how you actually perform those nursing roles**. Please circle the number that reflects your opinion on each question.

Rating System

6= Strongly agree	5= Agree	4= Agree Somewhat	3= Disagree somewhat	2= Disagree	1= Strongly disagree

Actually, How Do I Perform

No	Question	Answer Box Agree Disagree
1	I have opportunities to contribute to decisions regarding the hospital discharge of patients.	6 5 4 3 2 1
2	I have no choice but to omit patient education when it causes delays in the care of other patients.	6 5 4 3 2 1
3	I do not delegate division two nurses (practical nurses) or nurse aids to assist patients with activities of daily living.	6 5 4 3 2 1
4	I am involved in making policy decisions affecting my working conditions.	6 5 4 3 2 1
5	I am not involved in making policy decisions concerning the hospital support services on which my work depends.	6 5 4 3 2 1
6	I perform some of the technical procedures for a patient even if they could be done by ancillary personnel such as division two nurses (practical nurses).	6 5 4 3 2 1
7	I do not assign personal hygiene measures for patients to other personnel including division two nurses (practical nurses) or nurse aids.	6 5 4 3 2 1
8	The primary focus of my role is to carry out the doctor's orders.	6 5 4 3 2 1
9	I, as a division one nurse (Registered nurse), spend most of my time providing direct patient care.	6 5 4 3 2 1
10	I am responsible for developing a patient nursing care plan in collaboration with other health professionals.	6 5 4 3 2 1
11	I provide sufficient emotional support for patients while conducting procedures or treatments.	6 5 4 3 2 1
12	I have the freedom to initiate referrals to other health care providers without consulting with the patient's attending doctors.	6 5 4 3 2 1

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Section Three: Center for Epidemiologic Studies Depression Scale (CES-D)

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

	During the past week			
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.				
2. I did not feel like eating; my appetite was poor.				
3. I felt that I could not shake off the blues even with help from my family or friends.				
4. I felt I was just as good as other people.				
5. I had trouble keeping my mind on what I was doing.				
6. I felt depressed.				
7. I felt that everything I did was an effort.				
8. I felt hopeful about the future.				
9. I thought my life had been a failure.				
10. I felt fearful.				
11. My sleep was restless.				
12. I was happy.				
13. I talked less than usual.				
14. I felt lonely.				
15. People were unfriendly.				
16. I enjoyed life.				
17. I had crying spells.				
18. I felt sad.				
19. I felt that people dislike me.				
20. I could not get "going."				

Section Four: Withdrawal Cognition Scale (WCS)

This section is to identify **what you think of remaining in the nursing profession**. Please circle the number that reflects your opinion on each question. The rating system is described below.

Rating System

6= Strongly agree	5= Agree	4= Agree Somewhat	3= Disagree somewhat	2= Disagree	1= Strongly disagree

No.	Question	Answer Box Agree Disagree
1	All things considered, I would like to find a nursing job in a different organization.	6 5 4 3 2 1
2	All things considered, I would like to find a non-nursing job.	6 5 4 3 2 1
3	I will not look for a new nursing job in the near future.	6 5 4 3 2 1
4	I will probably look for a non-nursing job in the near future.	6 5 4 3 2 1
5	I intend to remain in the current organization more than a year.	6 5 4 3 2 1
6	I do not intend to quit nursing within a year.	6 5 4 3 2 1

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☒ What else that we did not ask that you think we need to know?

- ……
- ……
- ……
- ……

The End

Thank you for Participating with us.
Please return the questionnaire back to the envelope, close it and hand it back to the data collector.

Muhammad Darawad

Appendix B

Informed consent

Dear registered nurse,

You are being asked to participate in a research study about role discrepancy, depressive symptoms, and turnover intention among Jordanian nurses in the intensive care units (ICU). You were selected as a possible participant because you have been a registered nurse in the ICU for more than 3 months and we think that you can give us some information about your experience there. Please read this form and ask any questions that you may have before agreeing to be in the research.

Researchers at Case Western Reserve University- School of Nursing are conducting this study.

The purposes of this research are to explore if registered nurses in the ICU are having role discrepancy, and to examine its effects on their psychological and behavioral consequences represented by depressive symptoms and turnover intention. Also, it aims to promote nurses' work environment by exploring nurses' current working conditions.

If you agree to be a participant in this research, we would ask you to answer certain questions, and fill out your answers in the attached questionnaire. By participation, you will have no immediate benefits except helping to expand knowledge that may help other nurses in the future. On the other hand, no risk will occur and your current and future work position will not be affected.

The records of this research will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a participant. Research records will be kept in a locked file, and access will be limited to the researchers, the University review board responsible for protecting human participants, regulatory agencies.

Your participation is voluntary. If you choose not to participate, it will not affect your current or future work position. There is no penalty or loss of benefits for not participating or for discontinuing your participation.

The researchers conducting this study are *Dr. Diana Morris and Muhammad Darawad*. You may ask any questions you have now. If you have any questions later, you may contact them at [redacted] or [redacted].

If the researchers cannot be reached, or if you would like to talk to someone other than the researcher(s) about; (1) concerns regarding this study, (2) research participant rights, (3) research-related injuries, or (4) other human subjects issues, please contact Case Western Reserve University's Institutional Review Board at 001-216-368-6925 or write: Case Western Reserve University; Institutional Review Board; 10900 Euclid Ave.; Cleveland, OH 44106-7230, USA.

You will be given a copy of this form for your records.

I have read the above information. I have received answers to the questions I have asked. I consent to participate in this research. I am at least 18 years of age.

Print Name of Participant: _____
Signature of Participant: _____ Date: _____
Signature of Person Obtaining Consent _____ Date: _____

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