

**Factors Influencing Nurses' Willingness To Lead**

**By**

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**ABSTRACT**

**Background:** Given the looming nursing shortages, the aging nursing workforce, and the projected retirement of nurse leaders, there is a concern about nursing leadership shortages in the next decade. Several studies showed nurses are not interested in assuming future leadership positions. Studies investigating nurses' willingness to lead and related predictors remain scant.

**Purpose:** The purpose of this study was to investigate factors influencing nurses' willingness to lead.

**Design:** A cross-sectional descriptive design.

**Setting:** A public hospital in the Sultanate of Oman.

**Participants:** Registered nurses providing direct-patient care and with more than one year of experience in their current working unit at the time of survey.

**Methods:** Convenience sampling was used. Participants completed an online survey including questions on socio-demographics, job satisfaction, job burnout, perceptions of work environment, and willingness to lead. Standard descriptive statistics of means, standard deviations, frequencies, and percentages were used to describe sample demographics. Pearson, Spearman's correlation, independent sample t-test, and analysis of variance (ANOVA) were used to examine nurses' willingness to lead and its simple relationship with personal and situational factors. A multilevel modeling was used to examine the unique influence of personal and situational factors on nurses' willingness to lead.

**Results:** Nurses reported an average score of 2.9 out of 4 ( $SD \pm 0.7$ ) for their willingness to lead. Personal and situational factors explained 29% of the variances in nurses' willingness to lead. Total years of experience in nursing, adequacy of leadership preparation, and the quality of the nurse-physician collegial relations were significant predictors of nurses' willingness to lead.

**Conclusion and Recommendations:**

Understanding how to engage new nurses into leadership opportunities can help identify support they need. Nurse managers need to provide nurses who show interest in leadership with adequate leadership training prior to engaging them in leadership roles. Establishing a work environment's culture of positive nurse-physician relationships is necessary to enhance nurses' work attitude and engage them into leadership roles.

**Keywords:** Leadership, Nurses, Willingness to lead, Environment.

## TABLE OF CONTENTS

<b>TITLE PAGE</b> .....	i
<b>ACKNOWLEDGMENT OF FINANCIAL SUPPORT</b> .....	ii
<b>ACKNOWLEDGMENTS</b> .....	iii
<b>ABSTRACT</b> .....	iv
<b>TABLE OF CONTENTS</b> .....	vi
<b>LIST OF TABLES</b> .....	viii
<b>LIST OF FIGURES</b> .....	ix
<b>Chapter 1: Introduction</b> .....	1
Gaps in Knowledge .....	2
Study Purpose and Specific Aims .....	4
Significance to Nursing .....	4
<b>Chapter 2: Review of the Literature</b> .....	6
Scope of the Literature Review .....	6
Healthcare System in Oman and the Call for Enhancing Nursing Leadership.	6
An Overview of Nursing Leadership and the Role of Nurse Leaders .....	10
Willingness to lead .....	11
Conceptualization of willingness to lead .....	11
Significance of examining nurses' willingness to lead .....	12
Factors influencing nurses' willingness to lead .....	14
Conceptual Framework .....	16
Nurses' aspirations to management roles' conceptual framework .....	16
Herzberg's motivation-hygiene theory .....	18
The combination of the two frameworks .....	20
Personal factors .....	21
Situational factors .....	24
Research Specific Aims and Study Hypotheses .....	27
<b>Chapter 3: Research Design and Methods</b> .....	29
Research Design .....	29
Sample and Setting .....	29

Data Collection Procedure and Ethical Considerations .....	29
Study Variables and Data Collection Instruments .....	31
Data Analysis .....	34
<b>Chapter 4: Results</b> .....	<b>39</b>
Sample .....	39
Preliminary Analysis .....	39
Sample Demographics and Work Characteristics .....	41
Aim 1 Results .....	43
Aim 2 Results .....	47
Emergent Covariates .....	51
Summary .....	54
<b>Chapter 5: Discussion</b> .....	<b>56</b>
Discussion of Findings for Aim 1 .....	56
Discussion of Findings for Aim 2 .....	63
Summary and Implications .....	64
The implications of the research for nursing .....	65
Limitations of the study .....	67
Suggestions for future research .....	68
<b>References</b> .....	<b>70</b>
<b>Appendices</b> .....	<b>82</b>
Appendix A: Letter of Invitation and Advertisement .....	82
Appendix B: Information Sheet .....	83
Appendix C: Study Questionnaires .....	85
Appendix D: Permission to Use the Maslach Burnout Inventory .....	90

**LIST OF TABLES**

Table 1.	Comparison of healthcare systems and nursing workforces in the U.S.A and Sultanate of Oman .....	8
Table 2.	Participants' Socio-Demographics and Work Characteristics (N = 171)..	42
Table 3.	Factors Influencing Nurses' Willingness to Lead .....	50
Table 4.	Moderating Effect of Nationality on the Relationship between Leadership Preparation and Willingness to Lead .....	52
Table 5.	Moderating Effect of Nationality on the Relationship between Total Years of Experience in Nursing and Willingness to Lead .....	53
Table 6.	Moderating Effect of Leadership Preparation on the Relationship between Total Years of Experience in Nursing and Willingness to Lead.	54



**LIST OF FIGURES**

Figure 1.	Middle East	7
Figure 2.	Sultanate of Oman	7
Figure 3.	Nurses' Aspirations to Management Roles' Conceptual Framework	17
Figure 4.	Herzberg's Motivation-Hygiene Theory	19
Figure 5.	Nurses' Willingness to Lead Framework	21
Figure 6.a	Distribution of Years of Experience	40
Figure 6.b	Distribution of Nurse Staffing	40
Figure 6.c	Distribution of Leadership Preparedness	40
Figure 7.	Distribution of Residuals	51

## Chapter 1: Introduction

Nursing leadership has been documented in numerous policy and research documents as an important driver in sustaining high-quality patient care delivery (Ryan et al., 2015; Wong, Cummings, & Ducharme, 2013). Nurse leaders contribute to positive outcomes for patients, healthcare providers, and healthcare organizations (Cummings et al., 2008). Several healthcare organizations have called to recruit nurse leaders at every level and across all settings of the healthcare system (Australian College of Nursing, 2015; Institute of Medicine, 2010; Sultanate of Oman Ministry of Health [MOH], 2016; World Health Organization, 2017). With the global shortages of nurses and projected retirements of experienced nurse leaders, recruitment of future nurse leaders has become a critical public issue (Dyess, Sherman, Pratt, & Chiang-Hanisko, 2016; Laschinger et al., 2013). Recruiting and engaging more nurses into leadership positions have become increasingly important for healthcare organizations in Middle East countries generally, and in Sultanate of Oman specifically, for two reasons. First, the current number of nurses in Oman is 19,760. Based on the projected shortage of 4,842 registered nurses by 2027 in Oman and the fact that only 8% of the nursing workforce holds formal leadership positions, the profession will be short an approximated 1,480 nurse leaders in the next decade (MOH, 2014).

Second, during the early stages of development of the health system in Sultanate of Oman, the government had to rely on expatriate human resources for nursing professional staffing. As of 2016, non-Omani nurses accounted for half (51%) of the total nursing manpower (N= 19,760) (MOH, 2016a). Expatriate nurses have short-term employment agreements with a subsequent high rate of staff turnover leading to more shortages of nurses (Kamanyire & Achora, 2015). However, specific efforts are being directed to develop national workers in professional nursing. For example, part of the health strategic planning of Oman is to Omanize the nursing

profession (increase the number of Omani employees) by increasing the number of homegrown nurses and recruiting the new nurses to hold leadership positions (MOH, 2016b). There are, however, increasing anecdotal reports of unwillingness to lead and the difficulty in attracting nurses to hold leadership positions particularly in governmental public hospitals.

Given the roles of nurse leaders in improving healthcare organizational outcomes, enhancing quality of care delivery, and improving nurse outcomes (IOM, 2010, Wong et al., 2013b), unwillingness to lead is a barrier to the achievement of organizational, patient care, and professional nursing goals. To date, no known study has investigated nurses' willingness to engage in leadership roles in Sultanate of Oman. Assessing nurses' willingness to lead and associated predictors is critical to advance knowledge in how to recruit, motivate, and engage emerging nurse leaders in leadership roles.

### **Gaps in Knowledge**

While there is an increasing need to engage nurses in leadership roles from the bedside to the board (Australian College of Nursing, 2015; IOM, 2010; MOH, 2016), studies examining factors influencing nurses' willingness to lead are limited. To the author's knowledge, there is only one known quantitative study that explicitly investigated predictors of nurses' willingness to lead. Laschinger et al. (2013) conducted a national survey of direct-care nurses ( $N = 1241$ ) working in nine Canadian provinces. Findings showed that nurses' willingness to lead was influenced by personal and situational factors. Participants' age, educational preparation, and level of self-efficacy were significant ( $p < 0.05$ ) personal factors that influence nurses' willingness to lead. Findings also showed that the availability of leadership development opportunities, perception of supervisor role, and work engagement were significant ( $p < 0.05$ ) situational predictors of nurses' willingness to lead.

Studies that have evaluated willingness to lead have historically focused on the effects of demographic and personal characteristics in identification of potential leaders. Current literature on nursing leadership highlights the importance of situational and work-related factors in the recruitment and retention of nurse leaders. Increasing evidence demonstrates that nurse work environment and nurse-to-patient staffing ratio are linked significantly to positive nurse job-related outcomes such as job satisfaction, turnover rate, and work engagement (Aiken, Clarke, Sloane, Lake, & Cheney, 2008a; Kutney-lee, Wu, Sloane, Aiken, & Fagin, 2014; Lewis & Cunningham, 2016). Yet, no study has quantified the effects of these two situational factors on nurses' willingness to lead.

It is unknown whether the same findings can be translated from the Western healthcare culture, such as Canada, to Eastern healthcare cultures, such as the Sultanate of Oman. Three driving factors highlight the selection of the Sultanate of Oman. First, it is the citizen-country of the author where he has a vested interest in health care systems and nursing professional issues, and he has access to collaborators and data specific to the research topic. Second, Oman shares similar health care systems and cultures with Middle Eastern countries including the proportion of nurse-to-patient staffing ratios, work environment, make up of nursing personal (proportion of gender, nationals versus foreign nurses), and patient's expectations and perspectives of nursing care. Third, similar to Western countries, Oman is facing a shortage of nurse leaders and anticipated retirements of experienced nurse leaders (Kamanyire & Achora, 2015), which all underscore the need for devising ways to engage nurses into leadership roles and assess their willingness to lead.

### **Study Purpose and Specific Aims**

The purpose of this dissertation was to investigate factors influencing direct-care nurses' willingness to engage in leadership roles. To accomplish the study purpose, the following specific aims were examined:

**Specific aim 1.** Determine nurses' willingness to lead and its simple relationship with personal and situational factors among nurses working in Sultanate of Oman.

**Specific aim 2.** Quantify the unique influence of personal and situational factors on nurses' willingness to lead.

### **Significance to Nursing**

First, this body of work contributes to the knowledge base about leadership as it is the first to assess nurses' willingness to lead in Sultanate of Oman. Such findings will inform policy makers of strategies necessary to attract nurses into leadership roles. Second, it is the first to examine the influence of the nurses' perception of work environment and nurse-to-patient staffing on predicting nurses' willingness to lead. Previous studies have discussed the role of the work environment and staffing on nurses' general work engagement; full immersion in work activities and efficacy in work efforts (Leiter & Maslach, 2009), but not engagement in leadership roles (Laschinger & Leiter, 2006; Leiter & Spence Laschinger, 2006; Lewis & Cunningham, 2016). In contrast, this study focuses specifically on nurses' willingness to engage in leadership, providing nurse leaders with a greater understanding of the significant predictors of nurses' willingness to lead.

The discoveries of this work will provide healthcare leaders and policy makers with potential strategies for establishing a supportive work environment that empowers nurses to engage in leadership roles. Findings will also illuminate the role health care culture and

demographics (e.g: gender, age, and nationality) have on nurses' willingness to lead. Such findings will provide policy makers with strategies necessary to empower nurses to work to the full extent of leadership capacity.

## **Chapter 2: Review of the Literature**

### **Scope of the Literature Review**

This chapter starts with an overview of the healthcare system in Sultanate of Oman and the call for nursing leadership. The importance of nursing leadership and the role of nurse leaders in today's healthcare system is discussed. A discussion of the concept of willingness to lead, the importance of examining nurses' willingness to lead, and a critical analysis of prior studies investigating nurses' willingness to lead will follow. Conceptual frameworks guiding the entire dissertation are reviewed. Finally, the research specific aims and study hypotheses are presented.

### **Healthcare System in Oman and the Call for Enhancing Nursing Leadership**

The Sultanate of Oman is one of the Middle East countries located in the South East of the Arabian Peninsula along the East coast of the Persian Gulf (see Figure 1 and 2). Oman is the second largest Gulf country, with an area of 120,000 square miles and a coastline length of nearly 1,000 miles. Total population is four million. Oman has a socialized healthcare system, in which Omani nationals have free access to the country's public health care. The health system in Oman is characterized by its universal coverage for both citizens and non-nationals. Expatriates typically seek medical care in private sector clinics and hospitals. The healthcare system is managed by the MOH. Total Health Expenditures (THE) account for about 2.7% of Gross Domestic Products and the annual per capita health expenditure is about 568USD at current exchange rates. The government spends about 81.1% of THE. Out-of-pocket spending for direct purchase and cost sharing accounts for about 61.4% of private health expenditure and the remaining (7.3% of THE) are covered by sponsoring and/or insurance companies. Healthcare facilities include 65 hospitals, 193 health centers, and 859 clinics.

Figure 1.  
Middle East



Figure 2.  
Sultanate of Oman



The rapid growth of healthcare services has led to an increasing demand on medical and nursing workforces. Professional nursing in the Middle Eastern nation of Oman has grown rapidly since the country's 1970 modernization (the accession of His Majesty Sultan Qaboos bin Saeed) of its health care system. During the last two decades, the number of nurses working in Oman as a proportion of the general population has increased dramatically from 28.9 per 10,000 in 1975 to 44.8 per 10,000 in 2016 (MOH, 2016) (for a comparison of healthcare systems between the United States of America (U.S.A) and Oman see Table 1.).



Table 1.

*Comparison of healthcare systems and nursing workforces in the U.S.A and Sultanate of Oman*

		U.S.A	Oman
<b>Healthcare System</b>	Health insurance	<ul style="list-style-type: none"> <li>Public and private insurance</li> <li>Government funding of health care is limited to Medicare, Medicaid, Veterans and military health administration, and Stat children's health insurance program</li> </ul>	<ul style="list-style-type: none"> <li>Socialized medicine</li> <li>Ministry of Health is committed to provide total funding and insurance for all Omani nationals.</li> <li>Expatriates seek care in public and private sectors.</li> </ul>
	Total Healthcare Expenditure Coverage and Access	<ul style="list-style-type: none"> <li>GDP: 17.8%</li> <li>Annual per capita: \$10,345</li> </ul> Health insurance coverage is provided by several public (federal programs) and private sources	<ul style="list-style-type: none"> <li>GDP: 2.7%</li> <li>Annual per capita: \$568</li> </ul> Socialized medicine Omani nationals have free access to the country's public health care
<b>Nursing Workforce</b>	Total number of Nurses	2,857,180	19,760
	Proportion of nurses per 10,000 population	61	44.8
	Specialty	Staff nurses Medical and nurse assistants Nurse practitioners Clinical nurse specialist	Staff nurses Clinical nurse specialists
	Level of education	<ul style="list-style-type: none"> <li>Diploma or Associates is the minimum degree of registered nurses.</li> </ul>	<ul style="list-style-type: none"> <li>Diploma is the minimum degree of registered nurses</li> </ul>
	Diversity	Minority backgrounds represent 19% of the RN. <ul style="list-style-type: none"> <li>90.4% Females</li> <li>83% White/Caucasian;</li> <li>6% African American;</li> <li>6% Asian;</li> <li>3% Hispanic;</li> <li>1% American Indian/Alaskan Native;</li> <li>1% Native Hawaiian/Pacific Islander; and</li> <li>1% other nurses</li> </ul>	Overall nurses (N= 19,760) <ul style="list-style-type: none"> <li>Females: 88%</li> </ul> Omani: 49% (n= 9,594) <ul style="list-style-type: none"> <li>Females: 87%</li> <li>Males: 13%</li> </ul> Non-Omani: 51% (n=10,166) <ul style="list-style-type: none"> <li>Females: 89%</li> <li>Males: 11%</li> </ul> No documented data is available regarding the proportions of nurses' nationalities, race/ethnicity. However, majority of non-Omani nurses are from India, Philippines, Siri Lanka and few from Malaysia.
Nurse-to-patient ratio	Intensive care units: 1:2 Medical and surgical: 1:4-6	Intensive care units: 1:2 Medical and surgical: 1:4-6	
Annual wage	\$47,120	\$37,536	

According to the most recent health statistics released by the MOH (2016), a total of 19,760 nurses are working in Oman. Eighty eight percent of nurses are females. Oman still faces a 30% shortage of nurses, including nurse leaders (Kamanyire & Achora, 2015). Data analysis shows that to maintain the nurse-to-population ratio at levels seen in high-income countries, an additional 24,187 nurses will need to be recruited during the years 2021-2050; or in other words about 807 additional nurses will need to be recruited annually (Ministry of Health, 2014). Attrition rates have been taken into consideration when estimating these numbers. Given that nurses holding formal leadership roles represent approximately 8% of the total nursing workforce (N = 19,760), there is a projected shortage of 1,935 nurse leaders by 2050.

The nursing leadership shortage is being countered by employing expatriates on a fixed-term contractual basis. Due to global shortages of nurses and the rapid growth in healthcare services, the states of the Gulf Cooperative Council (GCC), which include Saudi Arabia, Bahrain, United Arab Emirates, Kuwait, Qatar, and Oman are heavily reliant on an expatriate workforce from highly qualified professionals to manual laborers (Al-Riyami, Fischer, & Lopez, 2015). Over the last 20 years, a majority of nurse leadership positions were held by non-Omani nurses, mainly from India and the Philippines, who represent 51% of the nursing manpower (MOH, 2016a). The non-Omani nurses have short-term employment agreements with a subsequent high rate of staff turnover leading to more shortages of nurse leaders (Kamanyire & Achora, 2015). In the early 1990s, the GCC states initiated a localization policy in an attempt to develop national workers in different health categories. Localization is the process of replacing expatriate workforce with nationals in several working positions and is commonly referred as (per the country of the origin) for example Saudization, Qataraization, and Omanization (Salih, 2010). Corresponding to GCC states' localization policy, nursing profession Omanization

'Vision 2020' was introduced in 1988 as a long-term strategic goal to break the country's dependence on the expatriate manpower by gradual replacement with similarly trained and qualified Omani workers particularly at formal leadership positions.

Anecdotal reports, however, have showed a reluctance of emerging Omani nurse leaders to hold leadership positions, particularly in governmental hospitals. Over the last five years, several experienced Omani nurses have left their leadership positions at governmental hospitals and now hold leadership positions in the private sector. This exodus may explain a portion of the increased workload of nurse leaders in government versus the private sector. In response, the MOH (2014a) called for studies that aim to improve nursing leadership and explore how the government can create a better environment to attract nurses to leadership roles. Investigating to what extent nurses are willing to lead and how a supportive environment can be provided is a critical first step.

### **An Overview of Nursing Leadership and the Role of Nurse Leaders**

The term *leadership* has several definitions. The majority of definitions share two main characteristics: (1) it is a process of influencing others; and (2) it is used to accomplish a goal (Huber, 2014; Shortell & Kaluzny, 2000). Influence is an instrumental element of leadership that implies a reciprocal relationship between the leader and organization, leader and an individual, and/or leader and a group (Kelly, 2012). Defining leadership as a process of influence broadens our understanding about leadership more than the traditional view of a leader being in a position of authority and exerting command and control. It is through inspiration and engagement that leaders influence others to participate in accomplishing common goals that fit with the organizational vision and mission. Every nurse has a potential to be leader when they influence others towards goal achievement.

Nurse leaders play a fundamental role in transforming healthcare systems, improving quality of patient care delivery, and improving nurse outcomes (IOM, 2010). What is still not known is to what extent nurses are willing to engage in leadership roles.

### **Willingness to lead**

**Conceptualization of willingness to lead.** Willingness reveals the state of desire to engage in leadership when used in the phrase *willingness to lead*. Several scholars- mainly in psychology and education- use the term willingness to lead and motivation to lead interchangeably (Amit, Lisak, Popper, & Gal, 2007; Clemmons & Fields, 2011). Although the two concepts are interrelated, they represent different constructs. While motivation reveals the underlying tendencies and reasons a person might have to behave in a particular way (Gangne & Deci, 2005), willingness reveals the quality or state of desire to engage in certain act. Thus, willingness is considered a precursor for successful motivation. According to Vroom's (1964) expectancy-valence theory of motivation and self-determination theory of motivation (Ryan & Deci, 2000), individuals might be motivated to engage in an act because they found it interesting and enjoyable (intrinsic/autonomous motivation). Others might be motivated because of external regulated forces and pressures, such as to get promoted or to please the boss and avoid guilt, that mandate participation in a certain act based on daily transactions of rewards and punishments (extrinsic/controlled motivation) (Ryan & Deci, 2000). While rewards, including financial incentives, may be important determinants of individuals' motivation, they alone cannot motivate workers to achieve organizational goals (Franco, Miller, Bennett, & Kanfer, 2002). Evidence has shown the use of tangible rewards and deadlines as extrinsic motivators has a negative impact on individuals professionalism by diminishing their feelings of autonomy and, consequently, diminishing their intrinsic motivation (Wynia, 2009). Accordingly, motivation

does not always mean having a willingness and inner desire to engage in certain roles or activities. Thus, distinguishing between the concept of willingness and motivation is critical.

The term *willingness to lead* was originally used in the psychology with the purpose of identification of leadership potential (Chan & Drasgow, 2001). The emphasis toward willingness to lead in nursing started initially in the Canadian healthcare systems where healthcare administrators emphasized the critical need for transitioning nurses to leadership roles (Block & Manning, 2007). *Willingness to lead* has been used in nursing in clinical settings with two main purposes: development of employees' leadership competencies (Block & Manning, 2007) and identification of sources predicting nurses' willingness to assume or reject new leadership roles (Ekstrom & Idvall, 2015; Sherman et al., 2015; MacPhail et al., 2015; Zwink et al. 2013). For example, Sherman et al. (2015) in their qualitative study used the term *willingness to lead* with relation to Generation Y nurses (born between 1981 and 2001) to explore nurses' desire to consider or reject nursing leadership positions such as being a nurse manager or supervisor.

**Significance of examining nurses' willingness to lead.** Recently, the concept of willingness to lead has been endorsed at the 50th annual American Organization of Nurse Executives (AONE) conference (2017) as a vital characteristic of future nurse leaders to meet the challenges of today's healthcare system. Examining nurses willingness to lead is critical because the way nurses lead affects healthcare organizations, patients, and nurses' outcomes (Cummings et al., 2008). There is increasing recognition that providing nurses with opportunities to practice to the full extent of their leadership capacity, in which nurses have more autonomy and decision-making authority, is linked to better nurse and patient outcomes (American Nurses Association, 2002; Rao et al., 2016). Hence, there is an increasing call internationally for expanding the opportunities for more nurses to lead across all levels of healthcare organizations (Australian

College of Nursing, 2015; Canadian Nurses Association, 2006; IOM, 2010; The King's Fund, 2012).

With a growing demand for professional nurses, an aging nursing workforce, and the projected retirements of experienced nurse leaders, devising ways to engage nurses new to the workforce in leadership is becoming strategically important to ensure effective succession planning (Dyess et al., 2016; Laschinger et al., 2013). Replacement and recruitment of nurse leaders is critical to the future of the nursing profession. Despite the critical need for more nurses to take on leadership roles, recent evidence suggests that nurses are not eager to take on leadership roles (Dyess et al., 2016; Sherman et al., 2015; Sherman & Pross, 2010). Recently published results from a large scale study conducted among direct-care nurses (N=1241) working in Canada showed that 86% of nurses were not interested in leadership roles such as a unit manager role (Laschinger et al., 2013). Another study conducted among nurses working in the state of Oregon in the U.S.A found that 78% (N= 3513) of nurses felt well prepared to assume leadership positions (Oregon Center for Nursing, 2014). However, of those 78%, only half were likely to advance into traditional leadership roles and a little more than half were likely to seek out opportunities to engage in leadership roles (Oregon Center for Nursing, 2014). It seems that nurses' reluctance to lead is a growing global concern. Based on the investigator's work experiences in Oman and anecdotal clinical reports, nurses working in Sultanate of Oman have reported their unwillingness to assume leadership positions due to increasing workload and a complex work environment. As of yet, this matter is based on the investigator's clinical observation and has not been empirically investigated. There is an urgent need for creating a favorable work environment that will encourage more nurses to seek out opportunities to engage in leadership roles. However, with a dearth of research on nurses' willingness to lead and its

associated factors specifically in Middle Eastern countries, the next logical step needs to assess the current work environment and identify factors that influence nurses' willingness to lead.

**Factors influencing nurses' willingness to lead.** Previous studies in nursing leadership demonstrated numerous demographic, personal, and situational factors influencing nurses' willingness to lead. Age has been documented as an important demographic factor associated with nurses' career decision-making. Laschinger et al. (2013) surveyed 1241 nurses providing direct-care working in nine Canadian provinces and found that as nurses become older, their willingness to assume leadership roles, such as being a nurse manager, declines. This might be related to their professionalism and not wanting to be removed from the bedside. It might also be attributed to nurses' belief that advancing in age makes it too late for them to assume leadership roles (Denker et al., 2015; Wong et al., 2013). Laschinger et al. (2013) also found baccalaureate-prepared nurses reported higher willingness to lead compared with diploma-prepared nurses. Recent qualitative descriptive studies also reported that nurses' gender, ethnicity, total years of experience, and adequacy of compensation including payment and other benefits were associated with nurses' willingness to lead (Denker et al., 2015; Sherman et al., 2015; Wong et al., 2013).

Personal factors, such as leadership self-efficacy and core evaluation of personal worth and capabilities, have been linked to nurses' willingness to lead. Nurses with greater confidence in their leadership capabilities were more willing to lead than nurses with lower self-efficacy (Laschinger et al., 2013). Lack of self-confidence to lead has been reported as a barrier for applying for nurse manager roles (Ekström & Idvall, 2015; Sherman, Schwarzkopf, & Kiger, 2011). Literature also suggested career satisfaction (Laschinger et al., 2013) and higher job burnout (Hewko, Brown, Fraser, Wong, & Cummings, 2015) are personal factors influencing nurses' willingness to stay in the current leadership roles.

Work characteristics and practice environment are important situational factors that influence nurses' willingness to lead (Dyess et al., 2016). Studies suggest that working in an unfavorable environment that lacks administrative and peer support (Sherman, Saifman, Schwartz, & Schwartz, 2015) and does not provide staff nurses with adequate opportunities to participate in policy making (Denker et al., 2015) is considered a major deterrent to accept leadership roles. In contrast, working in a favorable environment that provides nurses with adequate leadership preparation and training can enhance their leadership self-efficacy and accordingly increase their willingness to lead (Wong et al., 2013).

Two gaps in the willingness to lead literature were identified. First, the majority of the prior studies focused on factors influencing nurse managers' willingness to stay or leave their leadership positions (Brown, Fraser, Wong, Muise, & Cummings, 2013; Hewko et al., 2015; Warshawsky, Wiggins, & Rayens, 2016). Given the differences in span of control, tasks, and personal accountability for unit-level performance between nurse managers and staff nurses (Hewko et al., 2015), factors influencing retention of nurse managers might be different than those influencing direct-care nurses' recruitment and willingness to assume future leadership roles. Second, to date, there is no known study that explicitly examined willingness to lead and quantify its associated predictors among nurses working in Middle Eastern countries generally, or in Sultanate of Oman specifically.

In summary, despite the critical need to provide nurses with opportunities to engage in leadership roles, evidence suggests a reluctance of emerging nurse leaders' willingness to lead. Previous studies suggested that nurses' willingness to lead is influenced by personal and situational factors. However, there is no study investigating factors influencing nurses' willingness to engage in leadership roles in Sultanate of Oman.

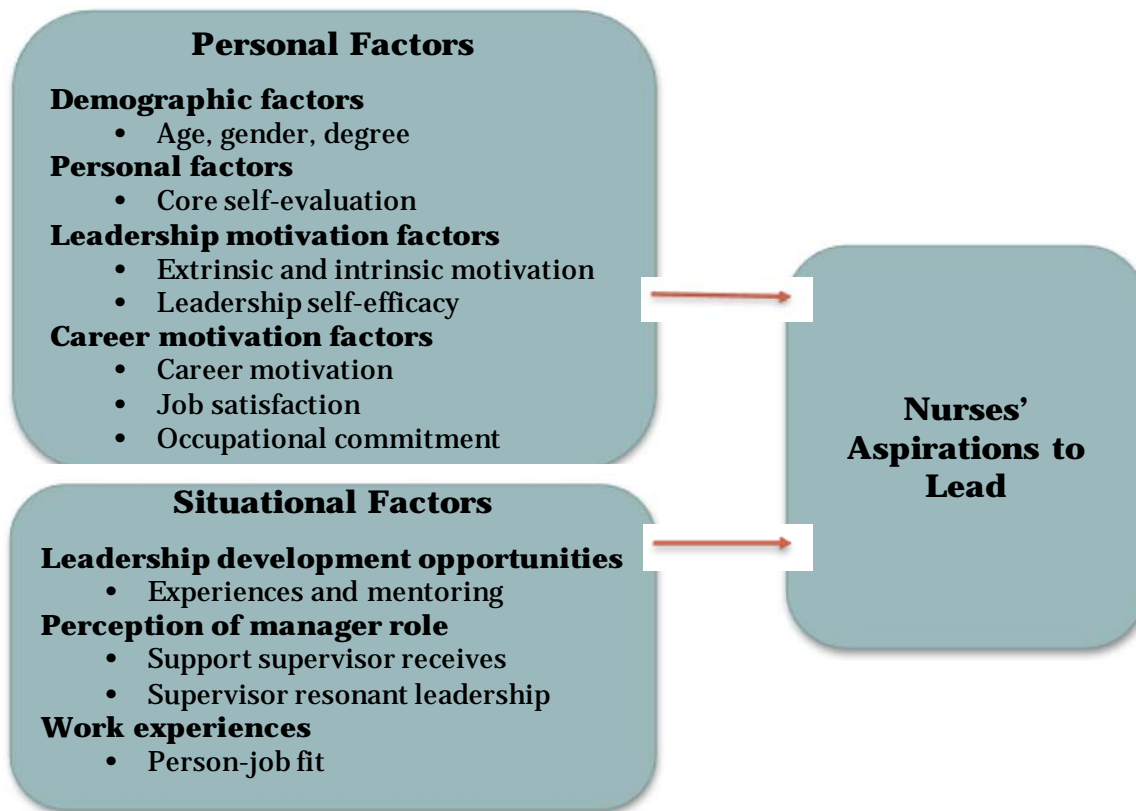


### **Conceptual Framework**

The nurses' aspirations to management roles' conceptual framework and the Herzberg's motivation-hygiene theory provide the conceptual basis for the entire body of the proposed research.

**Nurses' aspirations to management roles' conceptual framework.** The nurses' aspirations to management roles' conceptual framework was developed by Laschinger et al. (2013). The framework was derived from an extensive review of the literature in nursing and vocational psychology on factors that influence individuals' aspirations to leadership roles within their careers. According to Laschinger et al. (2013), there are two sets of factors that have been found to influence front-line employees' high-level career aspirations across occupations including nursing. Those factors are: (1) personal and (2) situational or work-related factors (see Figure 3). Personal factors include demographics (age, gender, degree, and feasibility of further education), personal (core-evaluation of ones' capabilities), and career motivational factors (intrinsic and extrinsic carrier motivation, job satisfaction, and occupational commitment). Situational factors include the availability of leadership development opportunities and training, nurses' perceptions of the manager role and support, and the current work experience.

Figure 3.

*Nurses' Aspirations to Management Roles' Conceptual Framework*

The nurses' aspirations to management roles' conceptual framework had been tested initially by Laschinger et al. (2013) using a quantitative study to examine the influence of personal and situational factors on direct-care nurses' (N= 1241) interest in pursuing nursing management roles. Using hierarchical regression analysis, findings suggested that demographic and personal factors (total  $R^2 = 0.587$ ) explained a greater amount of variance in nurses' aspirations to management roles than situational factors (total  $R^2 = 0.016$ ). The framework was further tested by Wong et al. (2013) by using qualitative descriptive methods to investigate factors that facilitate direct-care nurses' career decision-making. Eighteen focus groups with 125 staff nurses and managers in four regions across Canada were included. Findings revealed the

importance of work-related factors, such as administrative support and leadership development, in enhancing nurses' willingness to lead.

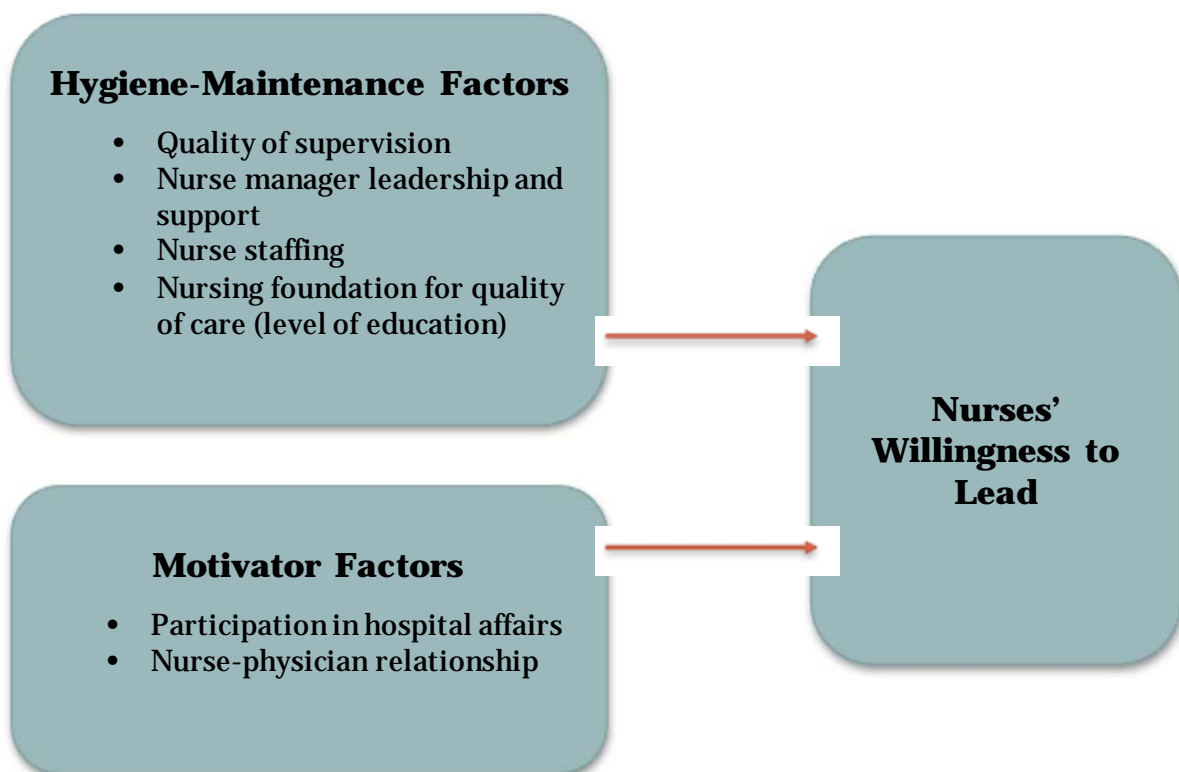
Although the nurses' aspirations to management roles' conceptual framework has been used to investigate the factors influencing nurses' willingness to pursue leadership positions, a gap exists in nursing leadership literature on the applicability of the framework in other healthcare cultures, such as Oman, which has not yet been investigated. The framework addresses the significant role of manager support and leadership preparation as situational factors in influencing nurses' willingness to engage in leadership roles. However, the framework does not adequately address the role of other important work environment characteristics, specifically the role of nurse visibility in hospital affairs, nurse-physician relationship, and nurse-to-patient staffing, on nurses' willingness to lead. The Herzberg's motivation-hygiene theory has additional aspects that better cover the concept of willingness to lead, such as providing an important foundation on the specific role of work environment and other work-related factors on nurses' willingness.

**Herzberg's motivation-hygiene theory.** The motivation-hygiene theory, also called a two-factor theory, was developed by Frederick Herzberg in 1966. Frederick Herzberg (1966) proposed that there are two sets of factors associated with employees' motivation: (1) hygiene-maintenance factors and (2) motivator factors (Lindsay, Marks, & Gorlow, 1967) (see Figure 4). Hygiene-maintenance factors relate to the job context or extrinsic aspects of the employees that surround the execution of the work. The factors include organizational policy, administrative structure, quality of supervision, relations with others, salary, physical working conditions, and job security. When these factors are absent, they can be sources of job dissatisfaction. However, presence of any of these factors alone will not lead to job satisfaction. Motivator factors are

related to the job content or intrinsic aspects of the employees and they include opportunities for achievement, responsibility, recognition, and promotion and personal growth. When these factors are present, employees are motivated and satisfied with their jobs. When they are absent, employees have neutral attitudes about their jobs. The two factor theory arises from the understanding that work has to be planned in such a way that both hygiene factors (extrinsic motivation) and motivator factors (intrinsic motivation) of the employees are fulfilled (Hee, Hayati, & Kamaludin, 2016).

Figure 4.

*Herzberg's Motivation-Hygiene Theory*

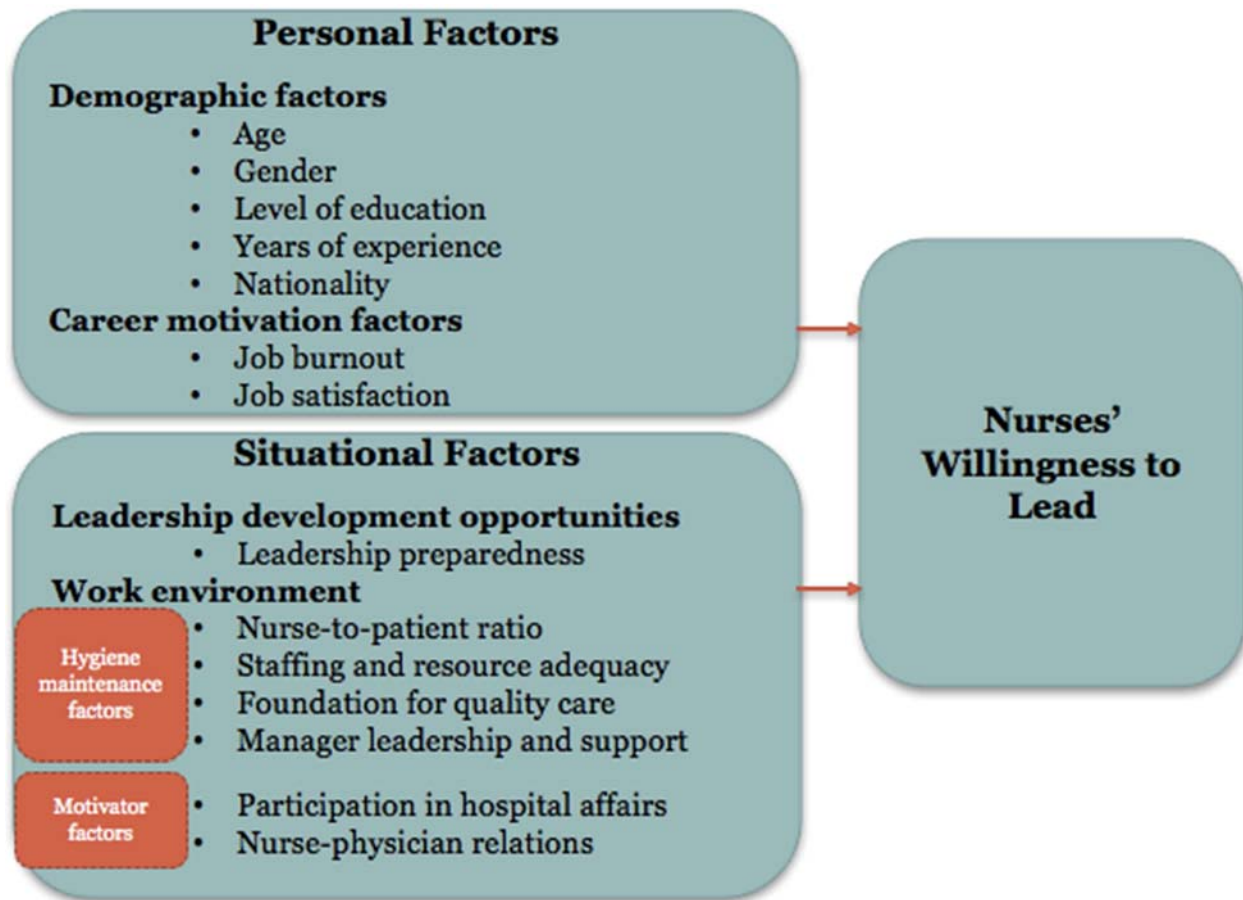


In this proposal, the investigator hypothesizes that working in a favorable environment that includes the presence of both types of factors will create a motivational climate that encourages nurses to engage in leadership roles. Work environment has been defined as “the organizational characteristics of a work setting that facilitate or constrain professional nursing practice” (Lake 2002, pg. 178). The work environment includes two motivator factors: (1) status of nurses within the hospital hierarchy, such as nurse participation in hospital affairs mainly internal governance of the hospital and participation in policy making, and (2) the quality and nature of the collegial relationship between nurses and physicians. In addition, the work environment sub-scales include three hygiene factors: (1) nurse manager leadership and support and quality of supervision, (2) staffing adequacy, and (3) nursing foundation for quality of care.

**The combination of the two frameworks.** While the nurses' aspirations to management roles' conceptual framework provides a broader theoretical foundation for the influence of personal and situational factors on nurses' willingness to lead, the Herzberg's motivation-hygiene theory provides specific theoretical explanations on the significance of the work environment characteristics that were not adequately addressed by the first framework.

It is noteworthy that this proposal is a beginning step and as a pilot study not all the measures of the aspirations to lead conceptual framework were tested to reduce potential survey fatigue (for the modified framework with variables that were tested in the current proposal, including the work environment characteristics supported by Herzberg's motivation theory, see Figure 5.

Figure 5.

*Nurses' Willingness to Lead Framework*

As shown in Figure 5, the included variables are grouped into personal and situational factors.

**Personal factors.**

**Age.** Studies found that young nurses are more willing to lead than older nurses (Denker et al., 2015; Laschinger et al., 2013; Wong et al., 2013). In Sultanate of Oman, despite the government plan to localize the nursing profession, the evidence showed that young Omanis were hesitant to join nursing due to various factors including cultural and religious norms such as mixing with different genders or caring for patients of the opposite sex (Al-Riyami et al., 2015).

It is the investigator's assumption that younger nurses will be less willing to lead than older nurses.

**Gender.** Similar to western countries, the nursing profession in Oman is predominantly female (88% of the 19,760 nurses). In a study conducted by Laschinger et al. (2013) gender was not a significant predictor of nurses' willingness to lead. A recent qualitative study by Al-Riyami (2015) of 16 Omani registered nurses and 26 student nurses showed that nursing profession was unattractive to men and women alike. In contrast, Shukri, Bakkar, El-Damen, & Ahmed, (2013) surveyed 377 undergraduate university students and found that both male and female students had positive attitude toward nursing profession; however, gender was not a significant predictor of nurses' willingness to lead. Traditionally, women are more concerned about their family responsibilities than their career path, and in this respect the increasing workload puts them in an uncomfortable position (Airini et al., 2011; Al-Riyami et al., 2015; Tracey, Nicholl, & Tracey, 2007; Wang & Jacobson, 2015). Taking into consideration the expected increasing span of control, workload, and accountability associated with assuming leadership roles, female nurses might be less willing to engage in leadership. However, the shift rotation invariability of staff nurses work and its effect on female nurses' domestic responsibilities are major concerns to hospital administration (Al-Riyami et al., 2015). Because formal leaders have consistent day shift schedules compared with many clinical staff nurses, female nurses might be more interested to engage in formal leadership roles.

**Level of education.** Focused group interviews with 125 staff nurses and managers working at four regions in Canada showed that higher level of education associated with more willingness to lead (Wong et al., 2013). When participants were asked about their interest in pursuing a management role, they often stated that they would need more education and

specifically a university degree before they could consider it. Currently, there is no published study that examines how nurses' level of education contributes to nurse leadership. It is the investigator's assumption that nurses with higher education received more academic preparation for leadership, and may be more willing to lead.

***Total years of experience.*** Sufficient clinical experience that provides nurses with sufficient knowledge of clinical care, career maturity, and time to learn from others has been documented as an important requirement for assuming leadership roles (Sherman et al., 2015; Wong et al., 2013).

***Nationality.*** Over the last three decades, Sultanate of Oman relied on foreign nurses, mainly from India, Sri Lanka, and the Philippines, to address the shortages in the nursing profession. Omani nurses represent only 49% ( $N = 19,760$ ) of the total nursing manpower. Several studies showed that employees' work attitude (Yousef, 2000) and commitment to their organizations differ according to their nationality (Al-Aameri, 2000; Al-Ahmadi, 2009); consequently, their commitments and willingness to serve in leadership positions might be affected as well. Omani staff are government employees and have job security because of permanent contracts. In contrast, non-Omani nurses work on a contract-basis. Al-Hamdan et al. (2017) found that Jordanian nurses working at public hospitals with permanent contracts reported higher job satisfaction and intent to stay at their current organization than nurses who worked in the private sector where they had temporary contracts. It may be that job security afforded to Omani nurses contributes to organizational commitment and consequently influences their willingness to lead. Accordingly, Omani nurses might be more willing to lead than non-Omani nurses.



***Job satisfaction and burnout.*** Job satisfaction is described as the degree to which employees like their jobs (McCloskey, 1990). Job satisfaction is operationally defined as satisfaction or contentment with the job itself, or the intrinsic factors of the job, and satisfaction or contentment with the jobs' extrinsic rewards (McCloskey, 1990). Job burnout is described as “a psychological syndrome of exhaustion, cynicism, and inefficacy which is experienced in response to chronic job stressors” (Spence Laschinger, Leiter, Day, & Gilin, 2009, p. 304). Previous studies found that nurse managers intending to leave their current leadership positions reported significantly lower career satisfaction and higher burnout levels (Hewko et al., 2015; Warshawsky & Havens, 2014). However, these studies investigated the association between burnout and willingness to stay at current leadership positions among nurses holding formal leadership positions. It is unreasonable to assume, prior to empirical investigation, that the factors that influence nurse managers' intention to leave or stay will be the same factors that influence staff nurses' willingness to assume future leadership roles.

#### **Situational factors.**

***Perception of the work environment.*** There is a current emphasis to create favorable work environments that enhance nurse leadership and enable employees to deliver safe, effective, and high quality patient care (Canadian Nurses Association, 2013; Australian College of Nursing, 2015). According to Lake (2002), a favorable work environment is the one characterized with a high-quality nurse-physician relationship, sufficient nurse staffing, adequate nurse manager support, and greater involvement of nurses in hospital affairs such as decision-making authority. Although several definitions of *work environment* are available, this conceptualization has been selected because each of the five characteristics can be amenable to intervention for improvement, and the scale used to measure the work environment, the Practice

Environment Scale of the Nursing Work Index (PES-NWI), has been used globally (Warshawsky & Havens, 2011).

Numerous studies found that working in a favorable environment was associated with greater work engagement, empowerment, and intent to stay (Nantsupawat et al. 2011; Kutney-Lee et al. 2013). On the other hand, working in an unfavorable environment, that lacks administrative and peer support for example, was a deterrent to accepting a leadership role (Ekström & Idvall 2015, Sherman et al., 2015).

In Gulf-countries to date there are no published studies investigating the effect of the work environment on nurses' willingness to lead. However, a country with a similar culture, Jordan, investigated the impact of the work environment on nurse satisfaction and intent to stay but not willingness to lead (Al-Hamdan, Manojlovich, & Tanima, 2017). Investigating nurses' willingness to lead in Oman is one of the healthcare research priorities. The MOH (2014a) called for studies that aim to improve nursing leadership and explore how the government can create a better environment to enhance leadership.

The work environment in Oman is characterized by the availability of strong staff development programs and clear mentorship plans for novice nurses and for those assuming leadership roles. In addition, there is good administrative support in terms of financial, educational, and good peer support. The evidence showed that several nurses were not willing to assume leadership due to lack access to structured mentorship, administrative support, or educational resources (Sherman et al., 2015). The availability of a favorable work environment might explain significant variances in nurses' willingness to lead. It is the investigator's assumptions that nurses' working in a favorable environment will be more likely to lead than nurses' working in an unfavorable environment.

Another important aspect of healthcare culture in Oman that might impact nurses' willingness to lead is the lack of nurse or medical assistants. Nurses are responsible to provide total care for patients (e.g. bed-bath, taking vital signs, and nursing documentation) regardless of educational degree. The baccalaureate and diploma-prepared nurses have the same job descriptions, and there are no medical or nurse assistants. As a result, the more patients nurses take care of, the more nurses want to escape to a formal leadership positions to avoid direct patient care and reduce their job burnout, which are all considered factors that might contribute to nurses' willingness to engage in leadership roles.

***Nurse-to-patient staffing.*** Similar to western countries, nurses represent the largest segment of the healthcare workforce in the Sultanate of Oman. In Oman's public hospitals, nurse-to-patient staffing ratio are: 1:2 in intensive care units, and 1:5 in medical and surgical units. Ensuring adequate nurse-to-patient staffing is a growing concern of policy makers as it relates to enhancing quality patient care and improving nurse outcomes (Bowblis, 2011; American Nurses Association, 2017). The role of nurse staffing related to nurses' willingness to lead has not been studied. However, previous studies found that inadequate staffing potentially impacts nurses' burnout (Stimpfel & Aiken, 2013; Koy et al. 2015). Similarly, it might follow that inadequate staffing influences nurses' willingness to engage in leadership. Several qualitative studies found that increasing workload is a barrier to assume leadership roles (Dyess et al., 2016; Sherman et al., 2015). It is the investigator's assumption that inadequate staffing leads to increasing workload, consequently affecting nurses' willingness to lead.

***Leadership preparedness.*** There is increasing evidence that providing nurses with adequate leadership preparation and training can enhance their leadership self-efficacy thereby increase their willingness to lead (Kelly, Wicker, & Gerkin, 2014; R. Sherman & Pross, 2010).

**Research Specific Aims and Study Hypotheses**

The specific aims and hypotheses of this dissertation were:

**Specific aim 1.** Determine nurses' willingness to lead and its simple relationship with personal and situational factors among nurses working in Sultanate of Oman.

*Hypothesis 1.1.* Older nurses are more willing to lead than younger nurses.

*Hypothesis 1.2.* Female nurses are more willing to lead than male nurses.

*Hypothesis 1.3.* Omani nurses are more willing to lead than non-Omani nurses.

*Hypothesis 1.4.* Experienced nurses are more willing to lead than less experienced nurses.

*Hypothesis 1.5.* Nurses with a higher level of education (master and/or baccalaureate-prepared) are more willing to lead than nurses with lower level of education (diploma-prepared).

*Hypothesis 1.6.* Nurses reporting higher job satisfaction are more willing to lead than nurses reporting lower job satisfaction.

*Hypothesis 1.7.* Nurses reporting lower job burnout are more willing to lead than nurses reporting higher job burnout.

*Hypothesis 1.8.* Nurses working in a favorable work environment have a higher level of willingness to lead than nurses working in a mixed or in an unfavorable work environment.

*Hypothesis 1.9.* Nurses reporting poorer patient-to-nurse ratios (taking care of more patients) will have a higher willingness to lead when compared with nurses reporting better patient-to-nurse ratios (taking care of fewer patients).

*Hypothesis 1.10.* Nurses reporting receiving adequate leadership preparation will have a higher willingness to lead when compared with nurses reporting receiving inadequate leadership preparation.

**Specific aim 2.** Quantify the unique influence of personal and situational factors on nurses' willingness to lead.

*Hypothesis 2.1.* Situational factors collectively (perception of work environment, nurse-to-patient staffing ratio, and leadership preparedness) significantly explain additional variance beyond that accounted for by personal factors (age, gender, nationality, total years of experience in nursing, job satisfaction, and job burnout).

### **Chapter 3: Research Design and Methods**

#### **Research Design**

A cross-sectional descriptive design was used to examine the influence of personal and situational factors on nurses' willingness to lead.

#### **Sample and Setting**

The target population of this study was staff nurses working in Sultanate of Oman. A convenience sampling method was employed to recruit nurses working at Royal Hospital (RH). The RH is a medical institution that provides tertiary medical care with a 630-inpatient beds capacity over 26 wards/units. The total number of nurses employed at the RH is 1851. Using a prior sample size online calculator (Soper, 2018), an estimated sample size of 141 participants was required to achieve a statistical power of 80%, p-value of 0.05, and to detect a medium effect size (Cohen's  $f^2 = 0.15$ ) for the overall model. A total of 26 predictors were included (14 personal predictors in the first block and 12 additional situational predictors in the second block).

The study was conducted over a five-month period. Participants were recruited using two methods: verbal announcements by the head nurse of each ward and an online announcement at the RH's website page. Inclusion criteria were: (1) willing and able to provide written informed consent, (2) female, male, Omani, and Non-Omani nurses were eligible, (3) holding a diploma or further educational degree, and (4) providing direct patient care. Exclusion criteria were: (1) do not provide direct patient care at the time of survey, and (2) having less than one year of experience in the current ward.

#### **Data Collection Procedure and Ethical Considerations**

Ethical approval from OHSU and Sultan Qaboos University's College of Nursing's

institutional review board was obtained prior to starting the study. The data collection methods involved administering online surveys. Prior to answering online surveys, participants were informed through a cover letter and written consent about the study aims, significance, procedures, absence of anticipated risks, study benefits, and voluntary participation. Participants were informed that their participation is voluntary and they can withdraw/quit at any point or choose not to answer any question. For more clarification of study aims and procedures, contact information of principal investigator and co-investigators was provided in the consent form.

Participant's anonymity and confidentiality have been maintained by removing all identifying information from all study documents. Participant's surveys were labeled using unique study identifiers only and did not contain identifiable information. Data from the surveys was abstracted into an Excel spreadsheet, and an electronic copy of each survey was generated. All electronic study data (i.e., excel spreadsheets, participants' surveys) were kept in password protected and encrypted files on a password-protected computer and only members of the research team are able to identify responses of individual subjects. Further, participants were informed that findings will be disseminated only in the aggregate and the name of the hospital will not be published.

**Potential study benefits.** Participants were informed that it is unlikely that subjects will have direct benefit from participating in the proposed study. However, subjects may feel satisfaction from knowing that their information will help in establishing strategies necessary for enhancing their work environment to improve their job-related outcomes. In addition, participants were informed that study benefits will include providing opportunities for participants to share their work experiences, their concern about level of job satisfaction, and the extent they are willing to engage in leadership roles. Possible benefits to society include gaining

insight into the quality of healthy work environments that enhances nurses' outcomes and consequently enhances patients' care experiences in hospital settings.

**Potential risks.** Participants have been informed that the level of risk of participating in the study was expected to be minimal. However, there was potential risks of loss of confidentiality. Loss of Confidentiality could occur and was considered unusual. The surveys have been chosen and/or modified to limit subject burden. The surveys took approximately 10-15 minutes to complete. There was no potential risk to study participants or their confidential information.

### **Study Variables and Data Collection Instruments**

**Personal variables.** Personal variables were collected on participants' demographics, job satisfaction, and job burnout.

**Demographics.** Using an investigator designed-instrument, demographic data were collected on participants' age, gender, level of education (i.e., diploma, BSN, master), nationality (i.e., Omani versus non-Omani), total years of experience, whether the participant provides direct care or not, and position in the unit (i.e., bedside nurse, charge nurse, nurse manager).

**Job satisfaction.** Job satisfaction was assessed with the Job Satisfaction Scale (Lynch, Plant, & Ryaln, 2005). This is a 6-item scale with a 5-point Likert scale response as follows: 1 for "strongly disagree", 2 for "disagree", 3 for "neutral, and 4 for "agree". The job satisfaction scale consists of two subscales: intrinsic and extrinsic job satisfaction. Intrinsic job satisfaction (items number 1, 2, and 3) measures satisfaction or contentment with the job itself (e.g, "most days I find my job to be extremely satisfying"), and extrinsic job satisfaction (items number 4, 5, and 6) that measures satisfaction or contentment with the job's extrinsic rewards (e.g, "the salary I receive is adequate to the responsibilities I am expected to fulfill"). The internal consistency reliability has been demonstrated by Lynch, Plant, and Ryaln (2005) with Cronbach's alphas of



.83 and .87 for the intrinsic and extrinsic job satisfaction scales, respectively. Intrinsic and extrinsic job satisfaction were measured as continuous variables based on how they were reported in the literature (Lynch et al., 2005).

**Job Burnout.** Job burnout was measured using the emotional exhaustion subscale of the Maslach Burnout Inventory (MBI), a standardized tool (Maslach & Jackson, 1986). Emotional exhaustion is a 9-item scale with 7-point Likert scale response as follows: 1 for “never”, 2 for “a few times a year or less”, 3 for “once a month or less”, 4 for “a few times a month”, 5 for “once a week”, 6 for “a few times a week”, and 7 for “every day”. Job burnout can be calculated as a continuous variable by a sum of total scores or as a binary variable: *High job burnout* for scores of 27 or above and *Low job burnout* for scores less than 27 as indicated in the MBI data manual (Mind Garden, 2017). Both ways were tested. The internal consistency reliability of the scale has been demonstrated by Aiken et al. (2008a) with a Cronbach alpha of 0.92.

**Situational and work-related variables.** Situational variables were collected on participants' perception of work environment, nurse staffing, and extent of leadership preparation.

**Nurses' perception of work environment.** Nurses' perceptions of their work environment were measured using the 30 items of the National Quality Forum-endorsed Practice Environment Scale of the Nursing Work Index (PES-NWI) (Lake, 2002). Each item is scored from 1 for “strongly disagree” to 4 for “strongly agree”. The PES-NWI comprises 5 sub-scales: (1) Nurse participation in hospital affairs, (2) Nursing foundation for quality care, (3) Nurse manager ability, leadership, and support of nurses, (4) Staffing and resource adequacy, and (5) Collegial nurse-physician relations. The internal consistency reliabilities of each sub-scale have been demonstrated by Lake (2002) with Cronbach's alpha ranging from 0.71 to 0.84. To analyze

work environment, subscale scores were calculated by averaging individual nurse responses to items in each subscale. An overall PES-NWI composite score was calculated by taking the average of the five subscales. Based on the PES-NWI composite score, work environments was re-categorized as one of the following categories:

- “Favorable”: scores exceeding the theoretical midpoint of 2.5 on 4 or 5 subscales,
- “Mixed”: scores exceeding 2.5 on two or three subscales, or
- “Unfavorable”: scores exceeding 2.5 on one or none of the subscales.

The use of the 2.5 theoretical midpoint is consistent with recent literature and has been supported by both criterion validity and latent class analysis (Friese, Lake, Aiken, Silber, & Sochalski, 2007; Lake & Friese, 2006; Patrician, Shang, & Lake, 2010). In addition to measuring nurses' perceptions of their work environment as a classified environment, perceptions of work environment were measured in terms of each sub-scale.

***Nurse staffing.*** Nurse staffing was measured using a single self-report question regarding the number of patients assigned to a staff nurse during a last shift. Consistent with prior studies, nurses who report caring for at least one patient were included in calculating the staffing measure (Aiken et al., 2008a; Patrician et al., 2010). The predictive reliability of this measure is well supported (Aiken et al., 2011; Aiken, Clarke, Sloane, Lake, & Cheney, 2008b; McHugh & Ma, 2013). Because the observations were not normally distributed, responses on the staffing variable were categorized into five categories (see the result section).

***Leadership preparedness.*** Nurses' perceptions of the extent to which their organization provides them with adequate training and preparations for leadership were measured using a single-self-report question: “*how well has your experience and training prepared you for leadership roles*”. Nurses rated their responses on a 4-point Likert scale as following: 1 for

“poorly”, 2 for “not well”, 3 for “well”, and 4 for “very well”. Because the observations on the leadership preparedness were not normally distributed (See the result section), responses were recoded into binary outcomes: *Adequate* if participant’s response was *very well* or *well*; and *Inadequate* if participant’s response was *not well* or *poorly*.

**Outcome variable.** Nurses’ willingness to lead was measured using two questions: (1) “*How likely are you to seek out opportunities to engage in leadership?*” which investigated nurses’ overall willingness to engage in leadership roles, and (2) “*How likely are you to want to advance in traditional leadership roles within your organization?*” which investigated nurses’ willingness to advance in the leadership ladder such as being a nurse manager. Nurses rated their willingness to lead responses on a 4-point Likert scale as following: 1 for “not likely”, 2 for “somewhat likely”, 3 for “likely”, and 4 for “very likely”. These two items were averaged to create a single continuous variable.

## **Data Analysis**

**Specific aim 1.** Determine nurses’ willingness to lead and its simple relationship with personal and situational factors among nurses working in Sultanate of Oman.

**Analysis strategy.** Standard descriptive statistics of mean, standard deviation, frequencies and percentages were used to describe nurses’ willingness to lead.

*Hypothesis 1.1.* Older nurses are more willing to lead than younger nurses.

*Analysis strategy.* A Pearson’s or Spearman’s correlation were used as appropriate to describe the relationship between willingness to lead and nurse’s age.

*Hypothesis 1.2.* Female nurses are more willing to lead than male nurses.

*Analysis strategy.* An independent sample t-test was used to describe willingness to lead among male and female.

*Hypothesis 1.3.* Omani nurses are more willing to lead than non-Omani nurses.

*Analysis strategy.* An independent sample t-test was used to describe willingness to lead among Omani and non-Omani nurses.

*Hypothesis 1.4.* Experienced nurses are more willing to lead than less experienced nurses.

*Analysis strategy.* A Pearson's or Spearman's correlation were used as appropriate to describe the relationship between willingness to lead and nurse's years of experience.

*Alternative strategy.* In case the years of experience variable is not normally distributed, the variable will be recoded as categorical variable grouping nurses' responses into quartiles and a one-way ANOVA will be used to examine if willingness to lead differ across years of experience.

*Hypothesis 1.5.* Nurses with a higher level of education (master and/or baccalaureate-prepared) are more willing to lead than nurses with lower level of education (diploma-prepared).

*Analysis strategy.* One-way ANOVA was used to describe the relationship between willingness to lead and nurse's level of education.

*Hypothesis 1.6.* Nurses reporting higher job satisfaction are more willing to lead than nurses reporting lower job satisfaction.

*Analysis strategy.* A Pearson's or Spearman's correlation were used as appropriate to describe the relationship between willingness to lead and nurse's intrinsic and extrinsic job satisfaction.

*Hypothesis 1.7.* Nurses reporting lower job burnout are more willing to lead than nurses reporting higher job burnout.

*Analysis strategy.* An independent sample t-test was used to describe willingness to lead comparing nurses with high versus low job burnout.

*Alternative strategy.* A Pearson's or Spearman's correlation was used as appropriate to describe the relationship between willingness to lead and nurses' job burnout. In this case, burnout was treated as a continuous variable calculating the total scores of items.

*Hypothesis 1.8.* Nurses working in a favorable work environment have a higher level of willingness to lead than nurses working in a mixed or in an unfavorable work environment.

*Analysis strategy.* A one-way ANOVA was used to examine if nurses' willingness to lead varies among nurses with different perceptions of work environment. Pearson's correlation was used to examine the relationship between each work environment's subscale and nurses' willingness to lead.

*Hypothesis 1.9.* Nurses reporting poorer patient-to-nurse ratios (taking care of more patients) will have a higher willingness to lead when compared with nurses reporting better patient-to-nurse ratios (taking care of fewer patients).

*Analysis strategy.* Pearson correlation was used to describe the relationship between willingness to lead and nurse staffing.

*Hypothesis 1.10.* Nurses reporting receiving adequate leadership preparation will have a higher willingness to lead when compared with nurses reporting receiving inadequate leadership preparation.

*Analysis strategy.* An independent sample t-test was used to describe willingness to lead among nurses received adequate versus inadequate leadership preparation.

**Specific aim 2.** Quantify the unique influence of personal and situational factors on nurses' willingness to lead.

*Hypothesis 2.1.* Situational factors collectively (perception of work environment, nurse-to-patient staffing ratio, and leadership preparedness) significantly explain additional variance

beyond that accounted for by personal factors (age, gender, nationality, level of education, total years of experience in nursing, job satisfaction, and job burnout).

*Analysis strategy.* Because nurses could not be considered independent but instead “nested” under their working unit, we assumed that  $n_j$  nurses working in the  $j^{\text{th}}$  unit might share some proportion of variance in their willingness to lead attributable to their common working unit, possibly impacting willingness to lead prior to consideration of any personal or situational-specific variables. Using nested data structure is preferred as it violates the independence assumption required by ordinary least-square (OLS) regressions. A major assumption of the OLS is that observations are independent from one another, which fail to account for the correlated structure of observation. This could lead to underestimation of standard errors and in turn result in a Type 1 error (concluding that the obtained results are significant, even when they are not). Thus, a multilevel mixed-effect modeling (two-step hierarchical linear modeling) was conducted to identify the proportion of variability in nurses' willingness to lead that is attributable to nurses' place of work-level effect.

Procedurally, willingness to lead was first examined in light of the place of work. An empty model that include two variables only, a willingness to lead and place of work, was conducted first. The extent to which willingness to lead is a function of place of work-level differences was quantified using the unconditional intra-class correlation (ICC) and p-value of less than 0.05. The ICC was used to indicate the degree of homogeneity of observations within nursing units. Accordingly, a linear mixed-effects model was fitted (Park & Lake, 2005). Conditional ICC was then computed to demonstrate further refinement with full models that include nurse- and unit-level factors.

Two multilevel models were generated: (1) the first model, which included the effect of personal factor variables on willingness to lead; and (2) the second (full) model, which included all parameters of personal and situational factors. A separate  $R^2$  (the percentage of variance of the outcome accounted for by the predictors in the model) was calculated for each model (the first and the second model) based on the work of Snijders and Bosker (1999). A chi-squared likelihood ratio test was conducted to compare the two models fit.

*Alternative analysis strategy.* Hierarchical linear regression modeling was used to determine if situational factors (second block) explain a significant amount of the variance in nurses' willingness to lead, over and above personal factors (first block). Data were reviewed for ability to meet the linear regression assumptions:

- linearity: the relationship between the independent and dependent variables is linear,
- normality: variables are normally distributed, and the distribution of the residuals is normal,
- homoscedasticity: the variability in the dependent variable is equal at all values of the independent variable (the residuals are equal across the regression line), and
- absence of multicollinearity: limited correlation among regression coefficients.

The significance of change in explained variance between blocks was evaluated using calculated  $R^2$ ,  $F_{\text{change}}$  statistic, and associated  $P$ -values. In addition, the additive effect (AKA effect size) of the second block of variables (situational factors) was quantified in the Cohen's  $f^2$  metric. Statistical significance was set a priori at  $p < 0.05$  level. All analyses were performed using the STATA version 14.1 (StataCorp, College Station, Texas).

## Chapter 4: Results

### Sample

A total of 199 participants from 20 wards responded to the online survey. Twenty-eight participants were excluded because they were not providing direct patient care at the time of the survey (24 were nurse managers and four were nurse coordinators). One hundred and seventy-one participants met the inclusion criteria.

### Preliminary Analysis

Exploratory data analysis was conducted to examine missing data, integrity of the data, the appropriateness of the mean as a measure of central tendency, and the shape of distribution. Although the overall analysis was satisfactory, three important issues were identified that need to be addressed.

The first issue was related to missing data. Of the 171 participants, 110 had no missing values and 61 had missing values on one or two study survey items. The amount of missing data on those 61 cases ranged from 1% to 35%. There were 57 missing responses for the "age" variable. Although no observable pattern of missingness emerged, the age variable was not included in the final model due to the concern that responses for the participants' age were not missing at random. A complete case analysis (list-wise deletion) was applied given that the remaining missing data represent only 1% (six cases) of the total missing data. The final model reported observations on 165 participants. Multiple imputation was conducted and revealed similar results with the complete case deletion approach.

The second issue concerned the dependent variable. Because the wording of the two items of the nurses' willingness to lead's measure (willingness to seek out opportunities to engage in leadership and willingness to advance into traditional leadership roles) was very



similar conceptually and there was a significant correlation between the two items (Kendall's tau-b = 0.452,  $p < 0.01$ ), willingness to lead was measured using the average score of both items.

The third issue was related to the distribution of years of experience, nurse staffing, and leadership preparedness variables. Because the observations on the variables: total years of experience, nurse staffing level, and leadership preparedness were not normally distributed (see Figure 6.a, 6.b, and 6.c), they were recoded as categorical variables grouping nurses' responses into quartiles, quintiles, and binary responses respectively, see Table 2. Leadership preparation was dichotomized as adequate and inadequate preparation.

Figure 6. a

*Distribution of Years of Experience*

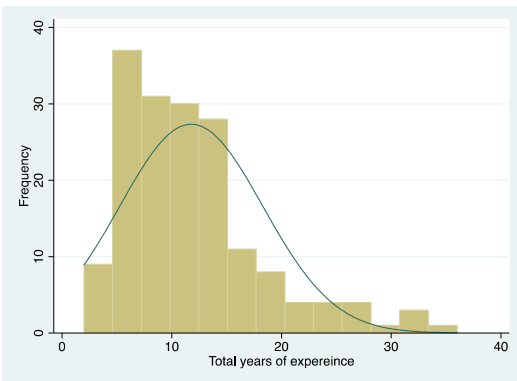


Figure 6. b

*Distribution of Nurse Staffing*

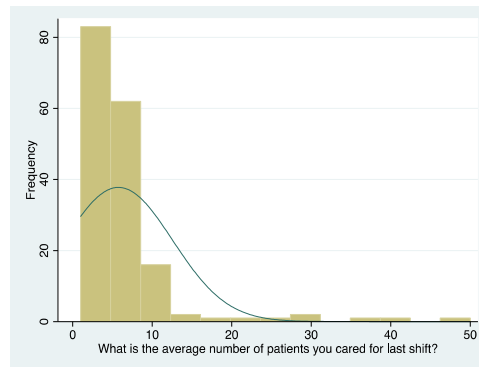
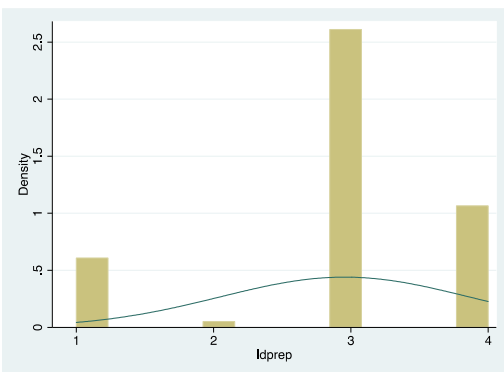


Figure 6.c

*Distribution of Leadership Preparedness*



**Sample Demographics and Work Characteristics**

The sample of nurses was predominantly non-Omani (71.9%), female (95.2%), and with an average age of 34.5 (SD  $\pm$  7.1) years. More than half of the participants had a diploma degree in nursing and were employed on critical care units. The average years of experience in nursing was 11.8 (SD  $\pm$  6.5). The average number of patients per nurse was 5.8 (SD  $\pm$  6.8). The majority of nurses (61.4%) perceived their work environment as favorable, 15.2% as mixed, and 23.4% perceived their work environment as unfavorable. The majority of nurses (84.8%) in the current study reported that their organizations prepared them well to assume leadership roles, see Table 2.

Table 2.

*Participants' Socio-Demographics and Work Characteristics (N = 171)*

<b>Participants Characteristic</b>	<b>n (%)</b>	<b>Mean ± SD</b>	<b>Median</b>
Age*		34.5 ± 7.1	32.5
Gender			
Men	10 (5.9)		
Women	161 (95.2)		
Nationality			
Omani	48 (28.1)		
Non-Omani	123 (71.9)		
Education			
Diploma	90 (52.6)		
Baccalaureate	74 (43.3)		
Master	7 (4.1)		
Experience as RN (Quartiles: years)		11.8 ± 6.5	10.0
Q1: 7 or less	46 (26.9)		
Q2: 8 - 10	44 (25.7)		
Q3: 11 - 15	45 (26.3)		
Q4: 16 or more	36 (21.1)		
Experience in the current unit (Quartiles: years)		5.5 ± 5.9	6.0
Q1: 3 or less	61 (35.7)		
Q2: 4 - 6	28 (16.4)		
Q3: 7 - 11	46 (26.9)		
Q4: 12 or more	36 (21.1)		
Place of work (units)			
Critical care	88 (51.5)		
Medical-Surgical	45 (26.3)		
Oncology	27 (15.8)		
Pediatric	3 (1.8)		
Others**	8 (4.7)		
Staffing (quintiles: patient-to-nurse ratio)		5.8 ± 6.8	5.0
Q1: 1	37 (21.6)		
Q2: 2	35 (20.5)		
Q3: 3 - 6	47 (27.5)		
Q4: 7 - 8	26 (15.2)		
Q5: 9 or more	26 (15.2)		
Categorized Work Environment			
Favorable	105 (61.4)		
Mixed	26 (15.2)		
Unfavorable	40 (23.4)		
PES-NWI Subscale Scores			
Participation in Hospital Affairs		2.5 ± 0.7	
Foundations for Quality Care		2.7 ± 0.8	
Nurse Manager Ability and Support		2.6 ± 0.8	
Staffing and Resource Adequacy		2.5 ± 0.8	
Nurse-Physician Relationship		2.7 ± 0.8	
Composite Score		2.6 ± 0.7	

Table 2. Continue.

*Participants' Socio-Demographics and Work Characteristics (N = 171)*

<b>Participants Characteristic</b>	<b>n (%)</b>	<b>Mean ± SD</b>	<b>Median</b>
Intrinsic job satisfaction		3.1 ± 0.8	3.3
Extrinsic job satisfaction		3.0 ± 1.1	3.0
Job burnout		34.6 ± 13.1	34.0
Leadership preparedness			
Adequate	145 (84.8)		
Inadequate	26 (15.2)		

\* Total sample is 114. 57 are missing

\*\* Include nurses working in multispecialty units, outpatient clinics, and cath lab.

**Aim 1 Results**

The first aim of this research was to determine nurses' willingness to lead and its simple relationship with personal and situational factors among nurses working in Sultanate of Oman. Eighty percent of nurses were likely to seek out opportunities to engage in leadership roles and 70.8% were likely to advance into traditional leadership roles. When measured as a composite score nurses reported an average score of 2.9 out of 4 (SD ± 0.7) on their willingness to lead.

**Hypothesis 1.1.** Older nurses are more willing to lead than younger nurses.

The relationship between participants' age and willingness to lead was tested using Spearman's correlation. Findings indicated a nonsignificant positive relationship between nurses' willingness to lead and nurses' age,  $r_s(112) = 0.08$ ,  $p = 0.46$ . Older nurses were not more willing to lead compared with younger nurses. Spearman's correlation is a nonparametric measure of strength and direction of association between two variables that is used when Pearson's correlation cannot be run due to violations of normality, a nonlinear relationship, or when ordinal level variables are being used (Laerd Statistics, 2013). In the current study, the relationship between age and willingness to lead was nonlinear.

**Hypothesis 1.2.** Female nurses are more willing to lead than male nurses.

A *t*-test was used to determine whether the female nurses were more willing to lead than male nurses. Prior to the analysis, parametric assumptions of the *t*-test were examined and found to be not violated: (1) the observations within each sample were independent, (2) the populations from which the two samples were selected is normal in shape, (3) the two populations (male and female) from which the samples were selected have equal variances (the standard deviations of both samples are approximately equal, 0.58 for male nurses and 0.68 for female nurses, and Bartlett's test did not provide evidence that equal variance assumption was violated,  $p = 0.53$ ). The result showed that the observed group effect was small and female nurses (mean = 2.91, SD  $\pm$  0.68) were not more willing to lead than male nurses (mean = 3.00, SD  $\pm$  0.18),  $t(169) = 0.41$ ,  $p = 0.68$ ,  $d = 0.13$ .

**Hypothesis 1.3.** Omani nurses are more willing to lead than non-Omani nurses.

Using a *t*-test, and meeting the assumptions listed above for this statistical analysis, Omani nurses were more willing to lead (mean = 3.17, SD  $\pm$  0.62) compared with the non-Omani nurses (mean = 2.82, SD  $\pm$  0.67),  $t(169) = 3.13$ ,  $p < 0.01$ . The observed group effect was medium,  $d = 0.53$ .

**Hypothesis 1.4.** Experienced nurses are more willing to lead than less experienced nurses.

A one-way ANOVA was conducted to examine if nurses' willingness to lead various according to years of experience. The four parametric assumptions of ANOVA were not violated: (1) the test was conducted to examine the relationship between a continuous dependent variable (willingness to lead) and a single categorical independent variable with two levels of more (years of experience was divided into four levels using quartiles), (2) observations were

independent, (3) dependent variable followed an approximately normal distribution in the population, and (4) the homogeneity of variance's assumption was not violated as showed by Bartlett's test ( $p = 0.44$ ). Findings from the omnibus ANOVA revealed a significant effect of years of experience on nurses' willingness to lead,  $F(3, 171) = 3.87, p = 0.01$ . A planned contrast was conducted to examine if more experienced nurses (those in the fourth quartile who have 16 years of experience or more) have greater willingness to lead than less experienced nurses (those in the first three quartiles) and findings revealed no significant relationship. However, nurses with 16 years of experience or more (Mean = 3.07,  $SD \pm 0.66$ ) have significantly greater willingness to lead than nurses with seven years of experience or less (Mean = 2.66,  $SD \pm 0.75$ ),  $p = 0.006$ , 95% CI [0.12, 0.69]. The observed group effect was medium,  $d=0.45$ .

**Hypothesis 1.5.** Nurses with a higher level of education (master and/or baccalaureate-prepared) are more willing to lead than nurses with lower level of education (diploma-prepared).

Using a one-way ANOVA, and meeting the assumptions listed above for this statistical analysis, nurses with higher level of education (master and baccalaureate prepared) were not more willing to lead than nurses with lower level of education (diploma prepared nurses),  $F(2, 171) = 2.54, p = 0.08$ . Findings from a prior-planned contrast also showed that nurses' willingness to lead was higher among master's and baccalaureate prepared nurses (Mean = 3.09,  $SD \pm 0.70$ ) compared with diploma prepared nurses (mean = 2.96  $SD \pm 0.62$ ), 95% CI = [-0.87, 0.29],  $d=0.24$ . However, zero was included in the CI indicating that there was no statistically significant difference between the two groups.

**Hypothesis 1.6.** Nurses reporting higher job satisfaction are more willing to lead than nurses reporting lower job satisfaction.

The relationship between nurses' willingness to lead and their intrinsic and extrinsic satisfaction was examined using a Spearman's correlation because the relationship was nonlinear. Findings indicated a nonsignificant positive  $r_s(171) = -0.03, p = 0.68$ , and a nonsignificant negative relationship,  $r_s(170) = -0.13, p = 0.09$ , with nurses intrinsic and extrinsic job satisfaction, respectively.

**Hypothesis 1.7.** Nurses reporting lower job burnout are more willing to lead than nurses reporting higher job burnout.

Both methods (measuring burnout as a continuous variable: the total scores of nurses' job burnout, and measuring burnout as a binary variable: high versus low burnout) were tested and revealed a nonsignificant relationship with nurses' willingness to lead. Using Spearman's correlation, findings indicated a nonsignificant negative relationship between nurses' willingness to lead and job burnout,  $r_s(166) = -0.11, p = 0.17$ . Nurses reporting lower job burnout were not more willing to lead than nurses reporting higher job burnout.

Using a t-test, nurses reporting higher job burnout (mean = 2.90, SD  $\pm$  0.68) were not more willing to lead compared with nurses reporting lower job burnout (mean = 2.97, SD  $\pm$  0.69),  $t(164) = 0.65, p = 0.52, d = 0.11$ .

**Hypothesis 1.8.** Nurses working in a favorable work environment have a higher level of willingness to lead than nurses working in a mixed or in an unfavorable work environment.

Using a one-way ANOVA, nurses working in a favorable environment (Mean=2.83) did not have a higher level of willingness to lead compared with nurses working in a mixed (Mean=3.10) or in an unfavorable environment (Mean=3.04),  $F(2, 171) = 2.62, p = 0.08$ . There was no statistically significant relationship between each such-scale of work environment and nurses' willingness to lead.

**Hypothesis 1.9.** Nurses reporting poorer patient-to-nurse ratios (taking care of more patients) will have a higher willingness to lead when compared with nurses reporting better patient-to-nurse ratios (taking care of fewer patients).

Using a one-way ANOVA, nurses reporting poorer patient-to-nurse ratios did not have a higher level of willingness to lead compared with nurses reporting better patient-to-nurse ratios,  $F(4, 171) = 0.85, p = 0.49$ .

**Hypothesis 1.10.** Nurses reporting receiving adequate leadership preparation will have a higher willingness to lead when compared with nurses reporting receiving inadequate leadership preparation.

Using a t-test, nurses who reported receiving adequate leadership preparation had a higher willingness to lead (mean = 3.02, SD  $\pm$  0.60) compared with nurses who reported receiving inadequate leadership preparation (mean = 2.33, SD  $\pm$  0.76),  $t(169) = -5.20, p < 0.01, d = 1.11$ .

## **Aim 2 Results**

The second aim of this research was to quantify the unique influence of personal and situational factors on nurses' willingness to lead.

**Hypothesis 2.1.** Situational factors collectively (perception of work environment, nurse-to-patient staffing ratio, and leadership preparedness) significantly explain additional variance in nurses' willingness to lead beyond that accounted for by personal factors (age, gender, nationality, level of education, total years of experience in nursing, job satisfaction, and job burnout).

The hypothesis was tested using two models. The first was a multilevel model that accounts for the nesting effect. In the multilevel model, the effects of independent variables on



nurses' willingness to lead were tested with two-level random intercept model: level 1 involved all variables related to personal and situational factors except the working unit, and level 2 involved the nursing working unit's variable. Eight percent (ICC= 0.08) of the proportion in willingness to lead was attributable to nurses' place of work-level class effect before personal and situational-level determinants were considered.

The second model was a hierarchical regression model that does not account for the effect of nesting groups of nurses within their working unit. In both (the regression and multilevel models), we found the effect of predictors the same; thus, we decided to go with the multilevel model to account for the nested effect within unit.

The analysis from the multilevel modeling revealed that the full model explained a significant amount of the variance in nurses' willingness to lead ( $R^2 = 0.29$ , Wald  $X^2 = 66.87$ ,  $p < 0.001$ ). Personal factors including gender, nationality, education, years of experience, job satisfaction, and job burnout explained 14.4% of the variance in nurses' willingness to lead ( $R^2 = 0.14$ , Wald  $X^2 = 26.70$ ,  $p = 0.003$ ). Adding the situational factors of perception of work environment, nurse staffing, and leadership preparedness significantly increased explained variance in nurses' willingness to lead ( $\Delta R^2 = 0.15$ , LR  $X^2 = 31.40$ ,  $p = 0.0005$ ; Model  $R^2 = 0.41$ ,  $X^2 = 4.17$ ,  $p = 0.02$ ). A chi-squared likelihood ratio test showed that the full model fits significantly better than the personal variables only model (LR  $X^2 = 31.40$ ,  $p = 0.0005$ ). The effect of adding situational factors to the multilevel model was medium to large (Cohen's  $f^2 = 0.21$ ).

Findings also showed that total years of experience, leadership preparedness, and nurse-physician collegial relationships were the only independent factors of nurses' willingness to lead holding all other factors constant. Nurses who had 16 years of experience or above were more

willing to lead ( $\beta = 0.30 \pm 0.14$ ;  $p = 0.03$ ) compared with nurses who had seven years of experience or less. Nurses-physician collegial relationship was significantly associated with significant increase in nurses' willingness to lead ( $\beta = 0.29 \pm 0.13$ ;  $p = 0.02$ ). Nurses reported receiving adequate leadership preparation and training from their organization were more willing to lead ( $\beta = 0.60 \pm 0.14$ ;  $p < 0.001$ ) compared with nurses reported received inadequate leadership preparation, see Table 3.

Table 3.

*Factors Influencing Nurses' Willingness to Lead*

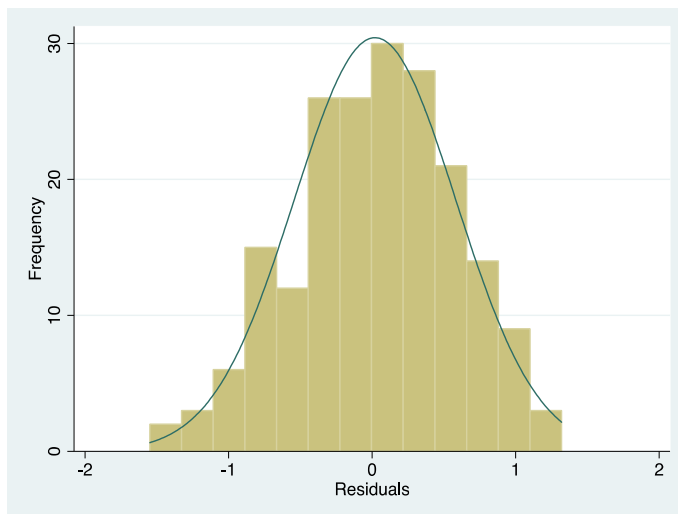
	$\beta$	SE	z	p-value	R <sup>2</sup>
<b>Model 1</b>					14%
<b>Personal Factors</b>					
Women relative to men	- 0.09	0.21	- 0.41	0.68	
Omani relative to non-Omani	0.28	0.12	2.32	<b>0.02</b>	
Education (relative to diploma)					
Baccalaureate	- 0.07	0.10	- 0.72	0.47	
Master	0.40	0.28	1.42	0.16	
Experience (relative to Q1: 7 years or less)					
Q2: 8 - 10	0.24	0.14	1.71	0.09	
Q3: 11 - 15	0.37	0.14	2.68	<b>0.007</b>	
Q4: 16 or more	0.40	0.15	2.68	<b>0.007</b>	
Intrinsic job satisfaction	- 0.01	0.08	- 0.09	0.93	
Extrinsic job satisfaction	- 0.04	0.06	-0.77	0.44	
Job burnout	- 0.02	0.12	-0.15	0.88	
<b>Model 2: Full Model</b>					29%
<b>Personal Factors</b>					
Women relative to men	-0.02	0.20	-0.08	0.88	
Omani relative to non-Omani	0.19	0.12	1.57	0.12	
Education (relative to diploma)					
Baccalaureate	- 0.08	0.10	- 0.83	0.35	
Master	0.26	0.27	0.95	0.39	
Experience (relative to Q1: 7 years or less)					
Q2: 8 - 10	0.12	0.13	0.91	0.32	
Q3: 11 - 15	0.22	0.13	1.73	0.09	
Q4: 16 or more	0.30	0.14	2.19	<b>0.02</b>	
Intrinsic job satisfaction	- 0.04	0.09	- 0.44	0.54	
Extrinsic job satisfaction	- 0.09	0.06	- 1.59	0.20	
Job burnout	0.02	0.12	0.18	0.55	
<b>Situational Factors</b>					
Work Environment Dimensions					
Participations in hospital affairs	- 0.15	0.19	- 0.83	0.56	
Foundation for quality	0.02	0.17	1.09	0.99	
Nurse manager ability, leadership and support	- 0.18	0.16	- 1.10	0.34	
Staffing and resource adequacy	0.08	0.12	0.69	0.86	
Nurse-physician's collegial relationship	0.29	0.13	2.27	<b>0.02</b>	
Staffing (relative to Q1: 1 patient per nurse)					
Q2: 2	0.31	0.16	1.90	0.18	
Q3: 3 - 6	0.23	0.15	1.51	0.46	
Q4: 7 - 8	0.27	0.17	1.57	0.30	
Q5: 9 or more	0.23	0.17	1.27	0.66	
Adequate relative to inadequate Leadership preparation	0.60	0.14	4.28	<b>&lt;0.001</b>	

Note. **Bolded** significance  $\leq 0.05$

Prior to running the multilevel modeling, initial analysis was conducted to explore the relationship between predictors in the model using the bivariate correlation of study variables. No preliminary evidence of multicollinearity was noted. Bivariate correlations that raise concern for multicollinearity in a regression analysis appear in a correlation matrix above 0.70 to 0.90 (Montgomery, Peck, & Vining, 2012). The highest correlation was -0.62 between work environment composite score and intrinsic satisfaction variables. Posttests were also conducted and there was no concern about multicollinearity (mean VIF=3) and residuals were normally distributed, see Figure 7.

Figure 7.

*Distribution of Residuals from Full Model*



### **Emergent Covariates**

Findings from preliminary analysis showed three candidates to explain nurses' willingness to lead which were nationality, leadership preparation, and total years of experience in nursing. Findings from the multilevel modeling showed that the independent effect of leadership preparation and years of experience on willingness to lead remained significant holding all other factors constant. To expand our understanding of the relationship between the

three aforementioned variables, separate moderation analyses were generated.

To examine the moderating role of nationality on the relationship between leadership preparations and willingness to lead, hierarchical linear (multilevel modeling) analysis with interaction was performed. Step one included the main effects model and the interaction was added in step two holding other factors constant. Findings showed that the relationship between leadership preparation and willingness to lead are not significantly different comparing Omani and non-Omani ( $p = 0.62$ ),  $\Delta R^2 = .0025$ ,  $X^2=0.51$ ,  $p$  value from likelihood ratio test = 0.92, see Table 4.

Table 4.

*Moderating Effect of Nationality on the Relationship between Leadership Preparation and Willingness to Lead*

	B	SE	z	p-value	R <sup>2</sup>
<b>Block 1</b>					29.16%
Non-Omani	-0.19	-0.12	-1.57	0.117	
Adequate Leadership preparation	0.60	0.14	4.36	<b>&lt;0.001</b>	
<b>Block 2</b>					29.41%
Non-Omani	-0.33	0.31	-1.07	0.28	
Adequate Leadership preparation	0.48	0.28	1.71	0.09	
Non-Omani x adequate preparation	0.15	0.31	0.49	0.62	

Note. **Bolded** significance  $\leq 0.05$

To examine the moderating role of nationality on the relationship between years of experience and willingness to lead, multilevel analysis with interaction was performed. Findings showed that the relationship between years of experience and willingness to lead are not significantly different comparing Omani and non-Omani,  $p = 0.61$  for interaction between non-Omani and 8-10 years of experience,  $p = 0.67$  for interaction between non-Omani and 11-15 years of experience,  $p = 0.50$  for interaction between non-Omani and 16 years of experience or more,  $\Delta R^2 = .002$ ,  $X^2 = 0.51$ ,  $p$  value from likelihood ratio test = 0.91, see Table 5.

Table 5.

*Moderating Effect of Nationality on the Relationship between Total Years of Experience in**Nursing and Willingness to Lead*

	B	SE	z	p-value	R <sup>2</sup>
<b>Block 1</b>					29.16%
Non-Omani	-0.19	-0.12	-1.57	0.117	
Experience (relative to 7 years or less)					
Q2: 8 - 10	0.12	0.13	0.91	0.32	
Q3: 11 - 15	0.22	0.13	1.73	0.09	
Q4: 16 or more	0.30	0.14	2.19	<b>0.02</b>	
<b>Block 2</b>					29.36%
Non-Omani	-0.32	0.23	-1.39	0.16	
Experience (relative to 7 years or less)					
Q2: 8 - 10	0.005	0.27	0.02	0.99	
Q3: 11 - 15	0.14	0.24	0.57	0.57	
Q4: 16 or more	0.14	0.27	0.51	0.61	
Non-Omani x 8-10 years of experience	0.16	0.31	0.51	0.61	
Non-Omani x 11-15 years of experience	0.13	0.29	0.43	0.67	
Non-Omani x 16 years of experience or more	0.22	0.33	0.68	0.50	

Note. **Bolded** significance  $\leq 0.05$

To examine the moderating role of years of experience on the relationship between leadership preparation and willingness to lead, multilevel analysis with interaction was performed. Step one included the main effects model and the interaction was added in step two holding other factors constant. Findings showed that the relationship between years of experience and willingness to lead were not significantly different comparing nurses with adequate and inadequate leadership preparation,  $p = .61$  for first categorical interactions (adequate leadership preparation with 11-15 years of experience),  $p = 0.77$  for second categorical interaction (adequate leadership preparation with 11-15 years of experience),  $p = 0.17$  for third categorical interaction (adequate leadership preparation with 16 years of experience or more),  $\Delta R^2 = .016$ ,  $X^2 = 3.10$ ,  $p$  value from likelihood ratio test = 0.38, see Table 6.

Table 6.

*Moderating Effect of Total Years of Experience on the Relationship between Leadership**Preparation and Willingness to Lead*

	B	SE	z	p-value	R <sup>2</sup>
<b>Block 1</b>					29.16%
Experience (relative to 7 years or less)					
Q2: 8 - 10	0.12	0.13	0.91	0.32	
Q3: 11 - 15	0.22	0.13	1.73	0.09	
Q4: 16 or more	0.30	0.14	2.19	<b>0.02</b>	
Adequate leadership preparation	0.60	0.14	4.36	<b>&lt;0.001</b>	
<b>Block 2</b>					30.77%
Experience (relative to 7 years or less)					
Q2: 8 - 10	-0.04	0.30	-0.13	0.90	
Q3: 11 - 15	0.30	0.31	0.97	0.33	
Q4: 16 or more	0.75	0.35	2.13	<b>0.03</b>	
Adequate leadership preparation	0.67	0.21	3.27	<b>0.001</b>	
Adequate preparation x 8-10 years	0.17	0.34	0.51	0.61	
Adequate preparation x 11-15 years	-0.10	0.34	-0.30	0.77	
Adequate preparation x 16 years or more	-0.52	0.38	-1.37	0.17	

Note. **Bolded** significance  $\leq 0.05$

**Summary**

This chapter presented results of a 171 staff nurses. Nurses reported an average score of 2.9 out of 4 (SD  $\pm$  0.7) on their willingness to lead. Findings from the preliminary analysis revealed that Omani, experienced nurses, and those who received adequate leadership preparation were more willing to lead than non-Omani, less experienced nurses, and those who received inadequate leadership preparation. To further examine the relationship between the three variables (nationality, years of experience, and leadership preparation), three separate interaction analyses were generated. The first interaction was conducted between nationality and leadership preparation to examine if the relationship between leadership preparation and willingness to lead are significantly different comparing Omani and non-Omani. The second interaction was conducted between nationality and years of experience to examine if the

relationship between years of experience and willingness to lead are different comparing Omani and non-Omani. The third interaction was conducted between leadership preparation and years of experience to examine if the relationship between years of experience and willingness to lead are different comparing nurses with adequate and inadequate leadership preparation. Results revealed nonsignificant interactions; indicating that the influence of nationality, years of experience, and leadership preparation on nurses' willingness to lead was independent.

Accounting for the influence of all variables in the model including nesting nurses within their working units using the mixed-effect linear regression, revealed that nurses' perception of their relationship with physicians were significantly associated with their willingness to lead in addition to their years of experience and adequacy of leadership preparation. Findings also showed that situational and work-related factors explained significantly an additional amount of the variance in nurses' willingness to lead compared with personal factors.



## Chapter 5: Discussion

The purpose of this dissertation was to investigate factors influencing direct-care nurses' willingness to lead in the Sultanate of Oman. The evidence from this study suggests that factors influencing nurses' willingness to lead are nationality, years of experience in nursing, and adequacy of leadership preparation and training. The relationship between years of experience, leadership preparation, and nurses' willingness to lead persists after adjusting for other factors. In this section, the relationship between these factors and nurses' willingness to lead are discussed in detail.

The discussion of findings in this chapter is organized by study aims and hypotheses. Theoretical and practical implications are presented. The last section of this chapter describes the summary of the study, implications of the research for nursing, limitations of the dissertation, and suggestions for future research.

### Discussion of Findings for Aim 1

The first aim was to determine nurses' willingness to lead and its simple relationship with personal and situational factors among nurses working in Sultanate of Oman. The findings showed that more than half of participants were willing to lead; both willingness to engage in leadership roles (80%) and to enroll in traditional leadership positions (70.8%). This finding is encouraging and suggests that there is an opportunity for the organization to create an environment that enhances leadership and develop direct-care nurses who show an interest to become leaders.

**Hypotheses.** Interestingly, the first hypothesis was not supported by the data. Older nurses were not more willing to lead compared with younger nurses. Although this result was unexpected, it must be noted that the correlation coefficient was very small (0.08) and

nonsignificant. However, because of the missing values of the age variable, we were unable to estimate the significance and/or how much variance in nurses' willingness to lead is attributed to nurses' age, controlling for other variables such as gender. Looking to the relationship between age and willingness to lead without considering gender could be less meaningful. Increasing evidence showed that gender plays a role in moderating the relationship between age and career advancement. Comparing men and women in the same occupation, Tracy and Nicholl (2017) posit that men undertake most of their major career changes early in their careers, particularly in the age range of 30-40 years, whereas women maintain a higher degree of movement throughout their careers. It is unknown if the same findings are evident when comparing willingness to lead specifically for staff nurses of both genders.

The second hypothesis was also not supported by the data. Consistent with researchers (Laschinger et al., 2013) in a Western country - Canada - who found that gender was not statistically a significant predictor of nurses' aspirations to hold a nurse manager position, our study showed that willingness to lead among male and female nurses working in the Sultanate of Oman was comparable. Traditionally, in health care systems worldwide, a gender divide exists where being a woman serves as a barrier in obtaining top-level positions due to family obligations (Tracey et al., 2007). This belief contributes to some extent to the gender gap in the upper-level management of healthcare organizations. The latest report on the state of women in leadership positions within the U.S.A healthcare industry found that although nursing is a female-dominated profession, there is still an underrepresentation of women in top leadership roles (Wang & Jacobson, 2015). In Oman, there is no published data available on the state of gender in nursing leadership positions. However, findings from both an Eastern country (Oman) and from a Western country of Canada suggest that there is no significant difference in work

attitude toward accepting leadership positions comparing male and female nurses. Therefore, equal opportunities should be provided to both genders equally when recruiting nurses for leadership positions.

When considering the findings related to the second hypothesis, it should be noted that the demographic profile of nurses' gender in our sample was noticeably different from the national database (MOH, 2016a), (5.9% men versus a national average of 11.4% men) limiting the generalizability of our study findings.

The third hypothesis was supported by the data. Omani nurses reported more willingness to lead than non-Omani nurses. This could be due to three potential explanations. First, Omani nurses working in the public sector are employed with a permanent-contract whereas non-Omani nurses are employed on a contractual-basis; thus, they have less job security as compared with Omani nurses. Researchers found that nurses with permanent contracts reported higher job satisfaction and intent to stay with their current organization than nurses who had temporary contracts (Al-Hamdan et al., 2017). Second, Omani nurses are more familiar with their work environment and organizational culture than non-Omani nurses. Consequently, Omani nurses might feel more comfortable holding leadership roles and exhibit more attitudes and commitments toward their organization. This is in support with Al-Aamer (2000) who found that Arab nurses working in Saudi Arabia reported the highest organizational commitment compared with nurses from different cultures, such as those from Europe, who reported the lowest organizational commitment.

The third potential explanation could be that the public perception can influence Omani nurses' willingness to assume leadership roles. The image of the nursing profession in the Arab countries is improving, and nursing is considered a desired profession (Ibrahim, Akel, &

Alzghoul, 2015; Shukri et al., 2013). This improved perception and desirability of nursing among the Arab population could encourage Omani employees to consider leadership positions more than non-Omani nurses. The Oman public views nurses who are holding leadership positions as being superior and as having higher social prestige and status compared with nurses providing direct-patient care. This view may encourage Omani nurses to consider leadership positions more than non-Omani nurses.

This finding needs to be further investigated with a larger sample size before it can be generalized as the number of nurses in each nationality group was dissimilar. Omani nurses represented only 28% of the total participants, and this does not reflect the national norm in which Omani nurses represent almost half (49%) of the total nursing workforce. The difference in the number of Omani versus non-Omani participants could be related to the fact that Omani nurses constitute only 36% (n=664) of the total number of nurses (N=1936) in the Royal hospital.

The fourth hypothesis was also supported. Total years of experience in nursing affected nurses' decisions to engage in leadership roles. Our findings support the evidence from previous qualitative studies showing that years of experience is related to nurses' willingness to hold future leadership positions (Sherman et al., 2015; Wong et al., 2013). Having more years of experience in the nursing profession can provide nurses with time to gain important requirements (such as sufficient knowledge of clinical care, being mentored by others, and career maturity) for management roles before leaving the bedside (Wong et al., 2013). The results suggest that increasing the length of time in nursing can promote the development of leadership competence. This finding indicates that people in human resource management need to consider applicant's

total years of experience in nursing as one of the selection criteria for holding leadership positions.

The fifth hypothesis was not supported. In contrast to Laschinger et al. (2013) who found that baccalaureate prepared nurses working in Canada had stronger willingness to enroll in leadership positions than diploma-prepared nurses, our study showed that willingness to lead among baccalaureate and diploma prepared nurses was comparable. The nonsignificant role of education on nurses' willingness to lead remained constant even when controlling for other factors including years of experience, work environment, and adequacy of leadership preparation. This may indicate that having a higher education degree is not a sufficient condition for holding top management positions and not all highly educated nurses are effective leaders. Enrolling in baccalaureate or even a master's degree programs do not necessarily guarantee that nurses will obtain the requisite leadership skills and competencies needed to meet the demands of a managerial job. Nurses with a higher education degree may still not feel sufficiently prepared enough to assume leadership positions, therefore the level of education does not always function as a motivating factor to lead.

The findings may inform nurse executives not to favor individual characteristics (Baccalaureate or master) when recruiting and advancing careers as the important factor to consider for a nurse's propensity to lead is not level of education, but rather explicit leadership preparation. The type of education that is expected to influence nurses' willingness to lead would be the one that aims to improve their leadership knowledge and competencies (Block & Manning, 2007; Cummings et al., 2008; MacPhail et al., 2015). And this is supported by the data of this study in which nurses who reported receiving adequate leadership preparation were more willing to lead compared with nurses who reported receiving inadequate preparation.

The sixth and seventh hypotheses were not supported. There was no statistical difference between nurses' job satisfaction, job burnout, and willingness to lead. These results are surprising because if nurses are emotionally exhausted and dissatisfied with their current position, it would seem that it might impact their interest in career advancement. The nonsignificant association might indicate that the level of job satisfaction and/or burnout is not acting as a barrier to accept future leadership roles. Instead, having a leadership position could provide nurses with formal power to initiate change.

The eighth hypothesis was not supported. This is surprising in light of the considerable literature suggesting the importance of the professional nurse practice environment measured by the PES-NWI on nurse job outcomes such as work engagement and job satisfaction (Al-Hamdan et al., 2017; Koy et al., 2015; Lewis & Cunningham, 2016). Given that the sample was recruited from a single institution, this might have demonstrated insufficient variation in practice environments; thereby, the lack of association may be attributed to the restricted range of the independent variable. An alternative explanation could be that the PES-NWI measure likely does not capture all aspects of the practice environment relevant to enhancing nurses' willingness to lead. The American Association of Colleges of Nursing (AACN, 2018) has specified eight Hallmarks of the Professional Practice Environment which are necessary for nurses to practice to the full extent of their leadership potential. The PES-NWI should be supplemented with four domains—autonomy, recognition/advancement of nurse preparation, professional development, and supportive relationships with peers—to cover the full spectrum of practice environment measurement. These four missing domains contain important factors might be associated with enhancing nurses' willingness to lead.

However, the nonsignificant relationship between work environment and willingness to lead was only evident examining the unadjusted effect of work environment on nurses' willingness to lead. Controlling for other covariates and considering the effect of nesting nurses within their working unit showed that nurse-physician relation, one of the work environment dimensions, was significantly associated with nurses' willingness to lead (see Discussion of Findings for Aim2).

The ninth hypothesis was not supported. Nurses' willingness to lead was not statistically different comparing nurses taking care of fewer patients with nurses taking care of more patients. Findings from qualitative studies showed that increasing workload is a barrier to accepting leadership roles (Sherman et al., 2015). However, measuring workload quantitatively in terms of nurse to patient staffing ratio may not capture all the elements of the workload relevant to nursing leadership. Nurse –to- patient staffing ratio measures nurses' perceptions of their current workload while delivering direct patient-care and does not predict nurses' perceptions of anticipated workloads associated with potential leadership roles. This disconnection may contribute to the nonsignificant association.

The tenth hypothesis was supported. Nurses reporting receiving adequate leadership preparation had a higher willingness to lead when compared with nurses reporting receiving inadequate leadership preparation. This was expected given the considerable leadership literature supporting that providing nurses with leadership mentoring (Spence Laschinger et al., 2013) and leadership development experiences (Cummings et al., 2008; MacPhail et al., 2015; R. O. Sherman et al., 2015) may increase their leadership self-efficacy through role modelling. This highlights the importance of providing nurses with adequate leadership opportunities prior to engaging them in leadership positions.

**Discussion of Findings for Aim 2**

The second aim of this research was to quantify the unique influence of personal and situational factors on nurses' willingness to lead. The results suggest that situational factors explained a significant amount of the variance in nurses' willingness to lead, over and above demographic and personal factors. This result is different from previous research by Laschinger et al. (2013) who found that demographic and personal factors have a greater influence on Canadian nurses' interest in pursuing nursing management roles than situational factors. This may indicate that the cross-cultural differences in nurses' willingness to lead are more likely due to work-related culture other than personal factors.

Findings from the multilevel modeling suggests that controlling for the important confounders, willingness to lead is significantly influenced by one personal factor and two situational factors. The personal factor is total years of experience in nursing. The two situational/work-related factors are leadership preparedness and nurse-physician collegial relationships. This finding has several implications for nursing practice. Our findings suggest that recruitment of potential leaders should not favor nurses based on personal or demographic characteristics such as level of education, gender, or nationality. Appropriate clinical experience is the necessary foundation to consider for recruitment and selection of potential nurse leaders. Wong et al. (2013) found that increasing the length of time in nursing provides nurses with opportunities to gain sufficient knowledge of clinical care, being mentored by others, and gain career maturity which all are necessary elements to lead the organization effectively.

Taking into consideration that the length of time in nursing does not automatically confer expert status in leadership, nurse managers need to provide nurses who show interest in leadership with adequate leadership training and support to hold future leadership roles.



Participants in our study perceived leadership preparation as the strongest predictor of their willingness to lead. As an example of interventions to enhance leadership preparation is providing nurses with a role model and formal training in leadership and management competencies. With the changes that have occurred in the nurse manager role, as an example, over the past two decades, formal training and mentorship plan needs to focus on multiple-unit management competencies and increased responsibility for budgeting, staffing, and regulatory compliance.

The results of this study also highlight the importance of nurse-physician relationships as a modifiable organizational characteristic that was shown to be significantly associated with nurses' willingness to lead. This result highlight the importance of the quality of the relationship between health-care workers on nurses' career advancement decisions. Although studies on how the relationship between the two professions can influence nurses' willingness to lead are scant, this might be explained by the blended theory in our study. According to Herzberg's motivation theory, employees' relation with others can influence willingness to lead by enhancing their job satisfaction and positive work attitude. In other words, nurse-physician relationships can create a satisfying work role. Thus, creating a work environment culture of positive nurse-physician relationships is required to enhance nurses' work attitude and willingness to lead. One example of the strategies that can strengthen relationships is engaging both professions in inter-professional collaborative activities that aim to create a culture of respect.

### **Summary and Implications**

Given the looming shortages of nurse leaders, aging nurse workforce, and projected retirements of experienced nurse leaders, recruiting and engaging nurses into leadership positions have become a critical issue for healthcare organizations globally and for Sultanate of Oman

specifically. Understanding factors influencing nurses' willingness to lead can help organizations create strategies to retain nurse leaders and initiate succession planning. The purpose of this study was to assess nurses' willingness to lead in the Sultanate of Oman and identify its associated predictors. Two theories guided the current study: the Aspirations to Lead theory and the Herzberger's Motivation Theory. The combined theory suggests that nurses' willingness to lead can be influenced by personal and situational factors.

A cross-sectional study was conducted in a public hospital in the Sultanate of Oman. Findings showed that more than half (61%) of participants ( $N = 171$  sample total number) were willing to lead. Study findings showed that nationality, years of experience, and leadership preparedness were significant predictors of nurses' willingness to lead. However, controlling for other important confounders, nationality was not a significant predictor. These findings provide several important implications.

**The implications of the research for nursing.** This dissertation provides several research, theoretical, and clinical implications.

**Research implications.** This study contributes to the knowledge base about nursing leadership as it is the first to assess nurses' willingness to lead and provide nurse managers with a greater understanding of the significant predictors of nurses' willingness to lead. It is also the first to investigate the role of work environment on nurses' willingness to lead. Considerable evidence examined the role of work environment on nurse related-outcomes such as job satisfaction, intent to leave, and perception of job burnout (Kutney-Lee et al., 2013; Kutney-lee et al., 2014), but not attitude toward engagement in leadership roles. Our results add to the evidence on the important role of work environment characteristics (mainly nurse-physician relationship) in motivating nurses to engage in leadership roles.

***Theoretical implications.*** The use of the blended theory can provide opportunities to move the nursing science forward as there is no single theory that comprehensively addresses nurses' willingness to lead. In the current study, out of the several hypothesized personal and situation factors in our framework, only one personal (from Aspiration to Lead Theory) and two situational factors (from Herzberg Motivational Theory) were significantly associated with nurses' willingness to lead, suggesting that the blended theory that guided the current study was partially supported. However, the blended theory has several contributions to our understanding of nurses' attitudes toward leadership. First, it provides more theoretical explanations that predictors of nurses' willingness to lead are multifactorial. The addition of Herzberg Motivation theory showed that the nursing practice environment plays an important role in enhancing their attitude toward leadership roles. For example, the findings showed that leadership preparation and work environment dimensions, specifically nurse-physician relationships, are modifiable and manageable factors that can create a motivational climate for nurses to lead.

Second, although other factors such as level of education and gender were not statistically significant predictors of nurses' willingness to lead, these findings are clinically significant. Depending on the purpose, resources, and circumstances, these findings may inform healthcare leaders that recruitment for nursing leadership positions should be provided equally for both men and women and Omani and non-Omani as they all showed comparable attitude toward assuming leadership roles.

***Clinical implications.*** The implications of this study are significant for hospital organizations at a system-level. Findings from this study advances nurse leaders' knowledge in how to recruit, motivate, and engage nurses in leadership roles. Previous evidence has focused primarily on the nurse demographic characteristics and traits in the selection and recruitment of

potential nurse leaders. The findings indicated that work-related characteristics may have greater impact on nurses' willingness to lead than demographic and personal characteristics. This finding highlights the importance of context and practice setting characteristics in engaging nurses in leadership roles. Providing nurses with a mentored and adequate leadership preparation prior to engaging them in leadership roles is highly recommended in order to enhance their work attitude. Moreover, strengthening nursing unit teams, particularly nurse-physician collegial relationships, is a potential strategy for establishing a supportive work environment that empowers nurses to practice to the full extent of leadership capacity.

**Limitations of the study.** As this was an analysis of cross-sectional data, the ability to determine causal relationships between personal and situation factors and nurses' willingness to lead was not possible. In addition, nurses were recruited from a single public hospital. Caution should be exercised when generalizing the findings to other hospitals, such as private hospitals, or health care cultures.

Furthermore, the full model explains 29% of variance in nurses' willingness to lead. While this is significant, there remains a large percentage of the variance in willingness to lead that is not explained by this model. The current study does not account for the influence of certain variables that have been shown by previous studies to influence employees' willingness to engage in leadership roles. For example, the current study's findings revealed that gender is not a significant predictor of nurses' willingness to lead. However, the relationship between gender and managerial advancement could be confounded by a family structure variable that was not measured in the current study. Several authors argue that being a married woman with children could be a barrier to considering leadership responsibilities due to the incompatibility between commitment to family life and the expected responsibilities of leadership positions

(Airini et al., 2011; Al-Riyami et al., 2015). Other variables that have been shown to influence employees willingness to lead are previous leadership experience (Laschinger et al., 2013), nurses' personality traits (Bono & Judge, 2004), and perception of leadership self-efficacy (Laschinger et al., 2013; Wong et al., 2013).

**Suggestions for future research.** As this was a pilot study that was conducted in a single public hospital, a large-scale study at the national level (including both public and private hospitals) is recommended to provide more generalizable data. Study findings suggested that nurses' nationality has unadjusted impact on nurses' willingness to lead. In the current study, nurses were recruited from a public hospital where Omani nurses have permanent contract. In private hospitals both Omani and non-Omani nurses have a temporary work contract. Given that job security might influence nurses' decisions to lead, further studies are needed to investigate if the impact of nationality on nurses' willingness to lead differs between public and private healthcare sectors.

Comparing the predictors for willingness to lead between direct-care nurses and current nurses holding formal leadership positions would be helpful in identifying strategies that can inform recruitment of potential leaders and retention of current leaders. The current study investigated factors influencing nurses' willingness to lead quantitatively. A future qualitative study designed to explore the facilitators and barriers to assume future leadership roles among direct-care nurses working in Oman is needed.

Findings from the current study suggest that strengthening the nurse-physician relationships could be helpful in enhancing their willingness to lead. Further interventional study that examine the impact of inter-professional collaboration on nurses' willingness to lead is highly recommended.

In conclusion, findings from the current study revealed that recruiting nurses into leadership positions should include consideration of years of experience in the nursing profession and the role of work-related factors, leadership preparation and the nurse-physician collegial relationship, on nurses' attitudes toward accepting future leadership roles. Therefore, recruitment of future leaders should not be based solely on nurse demographics. Rather, recruiters should focus on creating more favorable work environments to lead.

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Qualitative findings from a national study of Canadian nurses. *Journal of Nursing*

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## Appendices

### Appendix A: Letter of Invitation and Advertisement



#### **Quality of Hospital Work Environment, Nursing Workforce, and Nursing Outcomes: A Pilot Study**

*Dear Staff Nurse;*

We are researchers from Royal Hospital, Sultan Qaboos University (SQU), and Oregon Health & Science University (OHSU). Royal hospital, located in Al Ansab in the Muscat Governorate, is a tertiary-level, acute-care hospital located in Muscat. Sultan Qaboos University, located in Al Khoudh in the Muscat Governorate, is the only public university in the Sultanate of Oman. Oregon Health & Science University is a nationally prominent research university and Oregon's only public academic health center. It educates health professionals and scientists and provides leading-edge patient care, community service and biomedical research.

We would like to invite you to participate in our research study, "**Quality of Hospital Work Environment, Nursing Workforce, and Nursing Outcomes: A Pilot Study**". The main purpose of this study is to investigate quality of hospital work environment, nurse staffing, and nurse outcomes, such as job satisfaction and quality of care, in the Sultanate of Oman.

As a nurse with more than 1 year of experience in your current work place, you are cordially invited to participate in this study by completing a secure online questionnaire which will require approximately 10 to 15 minutes of your time. Through your participation, we eventually hope to understand how best to improve nurses' working conditions which will ultimately improve the quality of nursing care. In addition, through your answers, we hope to build an infrastructure for further research on quality of nursing/ health care in Oman.

To start the survey, click on the following link: (the link). Please note that prior to answering the survey, you will be directed to an information sheet that includes information on study aims, significance, procedures, study risks and benefits, and voluntary participation.

We thank you in advance for your consideration. If you require additional information about the study, please feel free to contact us on the following e-mails: [alsabei@ohsu.edu](mailto:alsabei@ohsu.edu); or [rossam@ohsu.edu](mailto:rossam@ohsu.edu), or cell phone numbers: +1 503-494-2123; +96894411630."

Sincerely,

Amy Miner Ross PhD, RN, CNS  
Associate Professor  
Director, Health Systems & Organizational Leadership Program  
OHSU, School of Nursing

Sulaiman Al Sabei RN, MSN  
OHSU PhD Candidate  
Lecturer,  
SQU, College of Nursing

IRB#17825

**Appendix B: Information Sheet**

OREGON  
HEALTH & SCIENCE  
UNIVERSITY

**Information Sheet**

IRB# 17825

**TITLE:** Quality of Hospital Work Environment, Nursing Workforce, and Nursing Outcomes:  
A Pilot Study

**PRINCIPAL INVESTIGATOR:** Amy Miner Ross, (503) 494-2123

**CO-INVESTIGATORS:** Sulaiman AlSabei, (971) 325-9575  
Suja Karkada, +968 91743751  
Nasra Al Hashmi +96898987771

**FUNDED BY:** Sultan Qaboos University.

**PURPOSE:**

You have been invited to be in this research study because you are a nurse with more than 1 year of experience in your current work place. The purpose of this study is to learn about the impact of nurse work environment and staffing on nurse outcomes including: job satisfaction, burnout, intention to leave within a year, quality of nursing care, and nurse engagement in leadership roles. We hope this information may help to improve the quality of nursing care in Oman.

**PROCEDURES:**

You are being asked to complete a secure online questionnaire which will take approximately 10 to 15 minutes of your time.

To start the survey, click on the “*Continue*” button at the end of this sheet. Completing and submitting the survey will be taken as a consent to use your responses for the research purpose.

If you have any questions, concerns, or complaints regarding this study now or in the future, or you think you may have been injured or harmed by the study, contact Nasra Al Hashmi at +968 98987771 or Amy Ross at +1 503-494-2123

**RISKS:**

Although we have made every effort to protect your identity, there is a minimal risk of loss of confidentiality. However, the data will be coded and securely stored to retain its confidentiality.

**BENEFITS:**

You will not benefit from being in this study. However, by serving as a subject, you may help us learn how to benefit nurses in the future and improve the overall quality of nursing care across all the government/ministry of health's hospitals of Oman.

**CONFIDENTIALITY:**

There is a potential risk of loss of confidentiality and would be considered unusual. Confidentiality of individual data will be maintained during the entire period. Your information including your current position and place of work will be de-identified. We will not use your name or your identity for publication or publicity purposes. The results will be published as aggregate findings.

**PARTICIPATION:**

This research is being overseen by an Institutional Review Board ("IRB"). You may talk to the IRB at (503) 494-7887 or [irb@ohsu.edu](mailto:irb@ohsu.edu) if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research subject.
- You want to get more information or provide input about this research.

You may also submit a report to the OHSU Integrity Hotline online at <https://secure.ethicspoint.com/domain/media/en/gui/18915/index.html> or by calling toll-free (877) 733-8313 (anonymous and available 24 hours a day, 7 days a week).

You do not have to join this or any research study. If you do join, and later change your mind, you may quit at any time. If you refuse to join or withdraw early from the study, there will be no penalty or loss of any benefits to which you are otherwise entitled.

*"Continue"*

**Appendix C: Study Questionnaires**

**Nurse Survey**

**Part one (11 items):** This part examines your demographic and background variables.

Numbe	<b>Demographic &amp; Background Variables</b> <i>Please complete the following inquiries</i>	
1	Age (in years)	
2	Gender	(1) Female (2) Male
3	Nationality	(1) Omani (2) Non-Omani
4	Social status	(1) Single (2) Married (3) Divorced (4) Widowed
5	Educational level	(1) Diploma (2) Bacculaureate (3) Master (4) Doctorate
6	Experience as a nurse (in years)	
7	Experience in your current ward/department (in years)	
8	Ward/department	
9	Average number of patients you cared for last shift	
10	When during the week do you most often work in your primary job as a nurse?	1) Primarily during the week 2) Primarily during the weekend 3) During the week and weekend
11	How would you describe your work as a nurse?	1) Staff nurse 2) Shift in-charge 3) Manager 4) Coordinator 5) Others

<b>Part two (31 items):</b> This part examines quality of the nursing practice environment through the Practice Environment Scale of the Nursing Work Index PES-NWI ©2002.					
<b>Number</b>	<b>Quality of the Nursing Practice Environment</b> <i>For each item, please indicate the extent to which you agree that the item is PRESENT IN YOUR CURRENT JOB by circling the appropriate number</i>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
1	Adequate support services allow me to spend time with my patients	1	2	3	4
2	Physicians and nurses have good working relationships	1	2	3	4
3	A supervisory staff that is supportive of the nurses	1	2	3	4
4	Active staff development or continuing education programs for nurses	1	2	3	4
5	Career development/clinical ladder opportunity	1	2	3	4
6	Opportunity for staff nurses to participate in policy decisions	1	2	3	4
7	Supervisors use mistakes as learning opportunities, not criticism	1	2	3	4
8	Enough time and opportunity to discuss patient care problems with other nurses	1	2	3	4
9	Enough registered nurses to provide quality patient care	1	2	3	4
10	A nurse manager who is a good manager and leader	1	2	3	4
11	A chief nursing officer who is highly visible and accessible to staff	1	2	3	4
12	Enough staff to get the work done	1	2	3	4
13	Praise and recognition for a job well done	1	2	3	4
14	High standards of nursing care are expected by the administration	1	2	3	4
15	A chief nursing officer equal in power and authority to other top-level hospital executives	1	2	3	4
16	A lot of team work between nurses and physicians	1	2	3	4
17	Opportunities for advancement	1	2	3	4
18	A clear philosophy of nursing that pervades the patient care environment	1	2	3	4
19	Working with nurses who are clinically competent	1	2	3	4
20	A nurse manager who backs up the nursing staff in decision making, even if the conflict is with a physician	1	2	3	4
21	Administration that listens and responds to employee concerns	1	2	3	4
22	An active quality assurance program	1	2	3	4
23	Staff nurses are involved in the internal governance of the hospital (e.g., practice and policy committees)	1	2	3	4
24	Collaboration (joint practice) between nurses and physicians	1	2	3	4
25	A preceptor program for newly hired RNs	1	2	3	4
26	Nursing care is based on a nursing, rather than a medical, model	1	2	3	4

27	Staff nurses have the opportunity to serve on hospital and nursing committees	1	2	3	4
28	Nursing administrators consult with staff on daily problems and procedures	1	2	3	4
29	Written, up-to-date nursing care plans for all patients	1	2	3	4
30	Patient care assignments that foster continuity of care, i.e., the same nurse cares for the patient from one day to the next	1	2	3	4
31	Use of nursing diagnoses	1	2	3	4

**Part three (6 items):** This part examines your perceived job satisfaction level through Job Satisfaction Scale ©2005.

Number	<b>Job Satisfaction</b> <i>Please answer the following questions by choosing the appropriate choice from 1 to 5</i>	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	Most days I find my job to be extremely satisfying	1	2	3
2	I often wish I had a different job	1	2	3	4	5
3	I feel very positively about my job at the hospital	1	2	3	4	5
4	I am satisfied with my current level of pay and benefits	1	2	3	4	5
5	The hospital pays its employees fairly	1	2	3	4	5
6	The salary I receive is adequate to the responsibilities I am expected to fulfill	1	2	3	4	5

**Part four:** This part examines your perceived burnout (emotional exhaustion) through Maslach Burnout Inventory ©1986.

No	Burnout Please answer the following questions by choosing the appropriate choice from 1 to 7	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
1	I feel emotionally drained by my work.	1	2	3	4	5	6	7
2	I feel used up at the end of the workday	1	2	3	4	5	6	7
3	I feel fatigued when I get up in the morning and have to face another day on the job	1	2	3	4	5	6	7



4	I can easily understand how my recipients feel about things.	1	2	3	4	5	6	7
5	I feel I treat some recipients as if they were impersonal objects	1	2	3	4	5	6	7
6	Working with people all day long requires a great deal of effort.	1	2	3	4	5	6	7
7	I deal very effectively with the problems of my recipients	1	2	3	4	5	6	7
8	I feel burned out from my work	1	2	3	4	5	6	7
9	I feel I'm positively influencing other people's lives through my work	1	2	3	4	5	6	7

(Published by Mind Garden, Inc. [www.mingarden.com](http://www.mingarden.com))

**Part five (1 item): This part examines your intent to leave your job within a year.**

No	Intent to Leave	Yes	No
1	If possible, would you leave your current hospital within the next year as a result of job dissatisfaction?	1	2

**Part six (2 items): This part examines your perception of quality of patient care at your unit.**

No	Quality of Patient Care	Poor	Fair	Good	Excellent
1	How would you describe quality of care delivered to patients on your unit over the last shift?	1	2	3	4
2	How would you describe quality of care delivered to patients on your unit over the past year?	1	2	3	4

**Part seven (3 items): This part examines your willingness to engage in leadership roles within your organization.**

No	Willingness to Lead	
1	How likely do you want to seek out opportunities to engage in leadership?	1) Not likely 2) Somewhat likely 3) Likely 4) Very likely
2	How likely are you to want to advance in traditional leadership roles within your organization?	1) Not likely 2) Somewhat likely 3) Likely 4) Very likely
3	How well has your experience and training prepared you for leadership roles?	1) Poorly 2) Not Well 3) Well 4) Very well

*Thank You*

**Appendix D: Permission to Use Maslach Burnout Inventory**

**Approval for Remote Online Use  
of a Mind Garden Instrument**

Effective date is September 30, 2016 for:  
Sulaiman Al Sabei

You submitted your statement for remote online use at 7:33 am EDT on September 27, 2016.



[www.mindgarden.com](http://www.mindgarden.com)

**Remote online use of the Mind Garden instrument stated below is approved for the person on the title page of this document.**

Question	Answer
Your name:	Sulaiman Al Sabei
Email address:	sulaiman.nursing@yahoo.com
Repeat email address:	sulaiman.nursing@yahoo.com
Phone number:	9713259575
Company/institution:	SQU
Your project title:	Quality of Hospital work environment, nursing workforce, and nursing outcomes: a pilot study
Mind Garden Sales Order or Invoice number for your purchase of reproduction licenses:	8577
The name of the Mind Garden instrument you will be using:	Maslach Burnout Inventory (MBI-HSS)