The copyright © of this thesis belongs to its rightful author and/or other copyright owner. Copies can be accessed and downloaded for non-commercial or learning purposes without any charge and permission. The thesis cannot be reproduced or quoted as a whole without the permission from its rightful owner. No alteration or changes in format is allowed without permission from its rightful owner.
DETERMINANTS OF NURSES’ PAIN MANAGEMENT PRACTICES IN JORDAN: THE MODERATING ROLE OF PATIENT’S BARRIERS

By
BASHAR ISAM ALZGHOUZ

Thesis Submitted to
School of Business Management
Universiti Utara Malaysia,
in Fulfillment of the Requirement for the Degree of Doctor of Philosophy
PERMISSION TO USE

In presenting this thesis in fulfillment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of School of Business Management where I did my thesis. It is understood that any copying or publication or use of this thesis or parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my thesis.

Request for permission to copy or to make other use of materials in this thesis in whole or in part should be addressed to:

Dean of School of Business Management
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman
ABSTRACT

In spite of the significant advancement in methods and tools associated with pain management, there is still a deficiency in the pain management practices. Therefore, the aim of this study is to empirically determine the level of pain management practices, evaluate the significant predictors of pain management practices (i.e. knowledge, attitude, subjective norm and self-efficacy), examine the moderating effect of patient barriers on the relationship between the predictors and the pain management practices, and to investigate the applicability of Field theory in explaining the pain management practices in Jordan. Six latent variables were involved including five exogenous and one endogenous variable and a cross-sectional survey was used in conducting the study. The instrument is consisted of 93 items adapted from the previous studies. The questionnaires were distributed to 600 nurses in 13 hospitals located in the central region of Jordan. The nurses were selected at random using a multistage cluster technique. Of 600, only 307 questionnaires were returned and used for analysis. Data collection was carried out for the period of six months from October 2014 until March 2015. Data were analyzed using partial least squares-structural equation modeling (PLS-SEM). The findings support the majority of the hypothesized relationships, specifically the hypothesized direct effects of attitude, self-efficacy, knowledge, and subjective norms on the pain management practices. In addition, patient-related barriers moderate one of these relationships. That is, the relationship between attitudes towards the pain management and the pain management practices is weaker for nurses who perceived high barriers from their patients as opposed to nurses who perceived low patient-related barriers. Collectively, the determinant variables of pain management practices accounted for 78% of the variance in the pain management practices. Theoretical, methodological, and practical implications are discussed.

Keywords: Pain management practices, Knowledge, Attitude, Self-efficacy, Subjective norm, Patients barriers, Jordanian hospitals
ABSTRAK


Kata kunci: Amalan pengurusan sakit, Pengetahuan, Sikap, Keberkesanan Diri, Norma subjektif, Halangan pesakit, Hospital Jordan
ACKNOWLEDGEMENT

In the name of ALLAH, the most gracious, the most merciful. Praise be to ALLAH, the creator and custodian of the universe. Salawat and Salam to our Prophet Muhammad, peace and blessings of ALLAH be upon him and to his family members, companions and followers.

First and foremost, I thank Allah (S.W.T) for bestowing me with the much-needed patience, perseverance, and persistence to accomplish this study. Second, I would like to acknowledge my supervisor, Dr. Nor Azimah Chew Abdullah, for her assistance, support, guidance, and encouragement during all the stages of my doctoral study. Also, I would like to express my heartfelt gratitude to my wife, Isra’a, and to my son, Hamzah, for their constant love and support. Additionally, I would also like to thank my parents, Isam and Hana, for their encouragement and instilling in me the value of education. Finally, I would like to thank my brothers, Mohammad and Loay, and to my sister, Sana’a, who were so supportive during my years of study.
TABLE OF CONTENTS

Page

TITLE PAGE .................................................................................................................... i
CERTIFICATION OF THIS WORK ............................................................................. ii
PERMISSION TO USE .............................................................................................. iv
ABSTRACT ...................................................................................................................... v
ABSTRAK ....................................................................................................................... vi
ACKNOWLEDGEMENT ............................................................................................ vii
TABLE OF CONTENTS ............................................................................................. viii
LIST OF TABLES ........................................................................................................ xii
LIST OF FIGURES ...................................................................................................... xiv
LIST OF APPENDICES ............................................................................................... xv
LIST OF ABBREVIATIONS ...................................................................................... xvi

CHAPTER ONE: INTRODUCTION ............................................................................ 1
  1.1 Background of the Study ..................................................................................... 1
  1.2 Problem Statement ............................................................................................ 5
  1.3 Research Questions .......................................................................................... 10
  1.4 Research Objectives and Study Aim ............................................................... 11
  1.5 Scope of the Study ............................................................................................ 11
  1.6 Significance of the Study ................................................................................ 13
  1.7 Summary and Overview of the Thesis ............................................................. 16

CHAPTER TWO: LITERATURE REVIEW ............................................................. 18
  2.1 Introduction ....................................................................................................... 18
  2.2 Contextual Information regarding Healthcare Sector in Jordan ...................... 18
  2.3 Overview of Pain .............................................................................................. 21
    2.3.1 Pain Theories .............................................................................................. 23
  2.4 Overview of Pain Management ......................................................................... 24
    2.4.1 Pain Assessment Phase ............................................................................. 24
    2.4.2 Pharmacological and Non-pharmacological Intervention Phase ............... 25
    2.4.3 Pain Reassessment Phase ........................................................................ 29
  2.5 Underpinning Theory ....................................................................................... 36
    2.5.1 Field Theory ............................................................................................. 36
  2.6 Review of Past Studies ...................................................................................... 38
    2.6.1 Pain Management Practices ..................................................................... 39
2.6.2 Attitude towards Pain Management ................................................................. 45
2.6.3 Relationship between Attitude towards Pain Management and Pain Management Practices ................................................................. 48
2.6.4 Self-efficacy of Pain Management ................................................................... 52
2.6.5 Relationship between Self-efficacy of Pain Management and Pain Management Practices ................................................................. 53
2.6.6 Knowledge of Pain Management ...................................................................... 55
2.6.7 Relationship between Knowledge of Pain Management and Pain Management Practices ..................................................................................... 59
2.6.8 Subjective Norm towards Pain Management ................................................... 62
2.6.9 Relationship between Subjective Norm towards Pain Management and Pain Management Practices ..................................................................................... 63
2.6.10 Moderator Effect of Patient-related Barriers ................................................... 65
2.7 Literature Gap and Contributions ........................................................................ 70
2.8 Chapter Summary ................................................................................................. 73

CHAPTER THREE: THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY ................................................................................................... 74
3.1 Introduction ............................................................................................................ 74
3.2 Research Design .................................................................................................... 74
3.3 Population, Sample Size and Sampling Technique ................................................ 76
3.3.1 Population ........................................................................................................ 76
3.3.2 Sample Size ...................................................................................................... 78
3.3.3 Sampling Technique ........................................................................................ 80
3.4 Research Framework .............................................................................................. 89
3.5 Hypotheses of the Study ......................................................................................... 91
3.5.1 Attitude towards Pain Management and Pain Management Practices .......... 91
3.5.3 Knowledge of Pain Management and Pain Management Practices .......... 94
3.5.4 Subjective Norm towards Pain Management and Pain Management Practices .......... 95
3.5.5 Moderator Effect of Patient-related Barriers ................................................... 96
3.5.6 Summary of Hypotheses .................................................................................. 99
3.6 Operational Definition of the Study Variables ...................................................... 100
3.7 Data Collection ..................................................................................................... 101
3.8 Instrumentation ..................................................................................................... 103
3.9 Pre-testing of the Questionnaire ........................................................................... 109
5.3.5 Subjective Norms towards Pain Management and Pain Management Practices ....................................................................................................................... 169
5.3.6 Moderating Effect of Patients-related Barriers ................................................................. 170
5.4 Implications of the Study .................................................................................................................. 172
  5.4.1 Practical Implications .............................................................................................................. 173
  5.4.2 Theoretical Implications ........................................................................................................ 174
5.5 Limitations and Future Research Directions .................................................................................. 177
5.6 Conclusions ................................................................................................................................. 179
REFERENCES .................................................................................................................................... 180
<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2.1</td>
<td>Summary of Previous Studies on the Relationship between Attitude and Pain Management Practices</td>
</tr>
<tr>
<td>Table 2.2</td>
<td>Summary of Previous Studies on the Relationship between Self-Efficacy of Pain Management and Intention to Perform Pain Management</td>
</tr>
<tr>
<td>Table 2.3</td>
<td>Summary of Previous Studies on the Relationship between Knowledge of Pain Management and Pain Management Practices</td>
</tr>
<tr>
<td>Table 2.4</td>
<td>Summary of Previous Studies on the Relationship between Subjective Norm towards Pain Management and Intention to Perform Pain Management</td>
</tr>
<tr>
<td>Table 3.1</td>
<td>Types of Hospitals, Number of Hospitals and Beds in Jordanian Health Sectors (2012)</td>
</tr>
<tr>
<td>Table 3.2</td>
<td>Number of Registered Nurses in Each Category of the Public Sector</td>
</tr>
<tr>
<td>Table 3.3</td>
<td>Cluster Sampling Technique Steps</td>
</tr>
<tr>
<td>Table 3.4</td>
<td>Number of Registered Nurses and Population for Each Hospital in the Public Sector at Central Province of Jordan</td>
</tr>
<tr>
<td>Table 3.5</td>
<td>Summary of the Study Hypotheses</td>
</tr>
<tr>
<td>Table 3.6</td>
<td>Operational Definitions for the Study Variables</td>
</tr>
<tr>
<td>Table 3.7</td>
<td>Summary of Original and Direct Sources of Each Variable Scale</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Response Rate of the Questionnaire</td>
</tr>
<tr>
<td>Table 4.2</td>
<td>Number and Percentage of Missing Values</td>
</tr>
<tr>
<td>Table 4.3</td>
<td>Univariate Outlier Test (z-score)</td>
</tr>
<tr>
<td>Table 4.4</td>
<td>Multivariate Outlier Detected and Removed</td>
</tr>
<tr>
<td>Table 4.5</td>
<td>Correlation Matrix of the Exogenous Latent Constructs</td>
</tr>
<tr>
<td>Table 4.6</td>
<td>Tolerance and Variance Inflation Factors (VIF)</td>
</tr>
<tr>
<td>Table 4.7</td>
<td>Results of Independent-Samples T-test for Non-Response Bias</td>
</tr>
<tr>
<td>Table 4.8</td>
<td>Demographic Characteristics of Participants</td>
</tr>
<tr>
<td>Table 4.9</td>
<td>Descriptive Statistics of Latent Variables</td>
</tr>
<tr>
<td>Table 4.10</td>
<td>Learning Outcomes of Multiple Choice Examinations</td>
</tr>
<tr>
<td>Table 4.11</td>
<td>Frequency, Percentage, Minimum and Maximum Score, Mean, and Standard Deviation of the Level of Nurses’ Pain Management Practices (N = 266)</td>
</tr>
<tr>
<td>Table 4.12</td>
<td>Frequency and Percentage of the Five Highest Orders of “Constantly” and the Five Highest Orders of “Never” of Nurses’ Pain Management Practices (N = 266)</td>
</tr>
<tr>
<td>Table 4.13</td>
<td>Composite Reliability</td>
</tr>
<tr>
<td>Table 4.14</td>
<td>Average Variance Extracted</td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>Table 4. 15  Latent Variable Correlations and Square Roots of Average Variance Extracted</td>
<td>144</td>
</tr>
<tr>
<td>Table 4. 16  Loadings, Composite Reliability, and Average Variance Extracted</td>
<td>145</td>
</tr>
<tr>
<td>Table 4. 17  Structural Model Assessment with Moderator (Full Model)</td>
<td>149</td>
</tr>
<tr>
<td>Table 4. 18  Variance Explained in the Endogenous Latent Variable</td>
<td>151</td>
</tr>
<tr>
<td>Table 4. 19  Effect Sizes of the Exogenous Latent Variables on Endogenous Latent Variable Based on Cohen’s (1988) Guideline</td>
<td>152</td>
</tr>
<tr>
<td>Table 4. 20  Construct Cross-validated Redundancy for Endogenous Latent Variable</td>
<td>154</td>
</tr>
<tr>
<td>Table 4. 21  Strength of the Moderating Effects Based on Cohen’s (1988) Guideline</td>
<td>157</td>
</tr>
<tr>
<td>Table 4. 22  Summary of Hypotheses Testing</td>
<td>158</td>
</tr>
</tbody>
</table>
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2.1</td>
<td>Percentage of beds in each health sector of the total number of hospital beds in Jordan</td>
<td>20</td>
</tr>
<tr>
<td>Figure 2.2</td>
<td>Numeric pain rating scale</td>
<td>30</td>
</tr>
<tr>
<td>Figure 2.3</td>
<td>Visual analog pain scale</td>
<td>30</td>
</tr>
<tr>
<td>Figure 2.4</td>
<td>Verbal numeric rating scale</td>
<td>31</td>
</tr>
<tr>
<td>Figure 2.5</td>
<td>Verbal descriptor scale</td>
<td>31</td>
</tr>
<tr>
<td>Figure 2.6</td>
<td>Wong-Baker faces pain rating scale</td>
<td>32</td>
</tr>
<tr>
<td>Figure 2.7</td>
<td>Field theory model</td>
<td>37</td>
</tr>
<tr>
<td>Figure 2.8</td>
<td>Linking of the study framework with field theory model</td>
<td>38</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>Provinces of Jordan</td>
<td>83</td>
</tr>
<tr>
<td>Figure 3.2</td>
<td>Theoretical framework of the present study</td>
<td>90</td>
</tr>
<tr>
<td>Figure 4.1</td>
<td>Histogram and normal probability plots</td>
<td>121</td>
</tr>
<tr>
<td>Figure 4.2</td>
<td>Linearity graph</td>
<td>122</td>
</tr>
<tr>
<td>Figure 4.3</td>
<td>Homoscedasticity test</td>
<td>123</td>
</tr>
<tr>
<td>Figure 4.4</td>
<td>A two-step process of PLS path model assessment</td>
<td>137</td>
</tr>
<tr>
<td>Figure 4.5</td>
<td>Measurement model</td>
<td>139</td>
</tr>
<tr>
<td>Figure 4.6</td>
<td>The structural model with moderator (full model)</td>
<td>148</td>
</tr>
<tr>
<td>Figure 4.7</td>
<td>The moderating effect of patients’ barriers on the relationship between attitude towards pain management and pain management practices</td>
<td>155</td>
</tr>
</tbody>
</table>
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>Approval letter from Universiti Utara Malaysia to start data collection</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Approval letter to collect data from Military Hospitals (King Hussein Medical Center &amp; Prince Hashem Bin Al_Hussein hospital)</td>
</tr>
<tr>
<td>Appendix C</td>
<td>Approval letter to collect data from hospitals belonging to Jordanian Ministry of Health</td>
</tr>
<tr>
<td>Appendix D</td>
<td>The researcher’s access card to the Military Hospitals (Security Clearance), clarifying the beginning and ending dates</td>
</tr>
<tr>
<td>Appendix E</td>
<td>Survey Questionnaire</td>
</tr>
<tr>
<td>Appendix F</td>
<td>Statistical normality test</td>
</tr>
<tr>
<td>Appendix G</td>
<td>The levels of nurses’ pain management practices</td>
</tr>
<tr>
<td>Appendix H</td>
<td>The complete ranking orders of pain management practices</td>
</tr>
<tr>
<td>Appendix I</td>
<td>Indicators loadings after individual item reliability</td>
</tr>
<tr>
<td>Appendix J</td>
<td>Indicators loadings after convergent validity</td>
</tr>
<tr>
<td>Appendix K</td>
<td>Indicators loadings after discriminant validity</td>
</tr>
<tr>
<td>Appendix L</td>
<td>Cross-loadings measure based on Chin (1998)</td>
</tr>
</tbody>
</table>

LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHCPR</td>
<td>Agency for Health Care Policy and Research</td>
</tr>
<tr>
<td>AMDA</td>
<td>American Medical Directors Association</td>
</tr>
<tr>
<td>BPS</td>
<td>British Pain Society</td>
</tr>
<tr>
<td>CME</td>
<td>Continuous Medical Education</td>
</tr>
<tr>
<td>CMV</td>
<td>Common Method Variance</td>
</tr>
<tr>
<td>EM</td>
<td>Expectation–Maximization</td>
</tr>
<tr>
<td>IASP</td>
<td>International Association for the Study of Pain</td>
</tr>
<tr>
<td>IM</td>
<td>Intramuscular</td>
</tr>
<tr>
<td>JCAHO</td>
<td>Joint Commission on Accreditation of Healthcare Organizations</td>
</tr>
<tr>
<td>JMoH</td>
<td>Jordan Ministry of Health</td>
</tr>
<tr>
<td>JRMS</td>
<td>Jordanian Royal Medical Services</td>
</tr>
<tr>
<td>JUH</td>
<td>Jordan University Hospital</td>
</tr>
<tr>
<td>KAH</td>
<td>King Abdullah University Hospital</td>
</tr>
<tr>
<td>KAP</td>
<td>Knowledge-Attitude-Practice</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>Non-Steroidal Anti-Inflammatory Drugs</td>
</tr>
<tr>
<td>PLS</td>
<td>Partial Least Squares</td>
</tr>
<tr>
<td>ONS</td>
<td>Oncology Nursing Society</td>
</tr>
<tr>
<td>PRN</td>
<td>pro re nata, a Latin phrase meaning &quot;as needed&quot;</td>
</tr>
<tr>
<td>PSUs</td>
<td>Primary Sampling Units</td>
</tr>
<tr>
<td>RMS</td>
<td>Royal Medical Services</td>
</tr>
<tr>
<td>RNAO</td>
<td>Registered Nurses Association of Ontario</td>
</tr>
</tbody>
</table>
LIST OF ABBREVIATIONS (CONTINUE)

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>SASA</td>
<td>South African Society of Anesthesiologists</td>
</tr>
<tr>
<td>SEM</td>
<td>Structural Equation Modeling</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
</tr>
<tr>
<td>TPB</td>
<td>Theory of Planned Behavior</td>
</tr>
<tr>
<td>UNRWA</td>
<td>United Nations Relief and Works Agency</td>
</tr>
<tr>
<td>VIF</td>
<td>Variance Inflation Factors</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Pain is one of the most common symptoms experienced by patients (Clinical Standards Advisory Group [CSAG], 1999; Gloth, 2001; Horbury, Henderson & Bromley, 2005; Strong, Unruh, Wright, & Baxter, 2002; Van den Beuken-van Everdingen et al., 2007). Approximately 79 percent of hospitalized patients is suffering from it (Lui, So & Fong, 2008). According to the International Association for the Study of Pain [IASP] (2012, p. 1), pain is defined as “unpleasant sensory or emotional experience associated with actual or potential tissue damage, or described in terms of such damage”.

Nurses are not the only health care providers responsible to relieve a patient’s pain (Government of Western Australia Department of Health, 2013; McMillan, Tittle, Hagan, Laughlin & Tabler, 2000), but they have a key role in managing the patient’s pain (Lewthwaite et al., 2011; Ung, Salamonson, Hu & Gallego, 2015; Zalon, 1995). This owes to the fact that the nurses are in a central position between the responsible physicians and their patients (Jacox et al., 1994; Lellan, 1997; McCaffery & Pasero, 1999; Registered Nurses Association of Ontario [RNAO], 2013; Schafheutle, Cantrill, & Noyce, 2001). Furthermore, the nurses spend most of their time with patients to offer appropriate health care services (Coulling, 2005; Lui et al., 2008). One of the most recurrent health care services provided by the nurses is pain management (Brown, Bowman & Eason, 1999), so the nurses should handle it as the ‘fifth vital sign’ alongside blood pressure, temperature, breathing and pulse rate (Merboth & Barnason, 2001).
The contents of the thesis is for internal user only
REFERENCES


Al-Atiyyat, N. M. H. (2008). Patient-related barriers to effective cancer pain management. *Journal of Hospice & Palliative Nursing, 10*(4), 198-204. [http://dx.doi.org/10.1097/01.njh.0000319161.97477.b0](http://dx.doi.org/10.1097/01.njh.0000319161.97477.b0)


http://dx.doi.org/10.1097/prs.0000000000000681


http://dx.doi.org/10.1037//0022-3514.51.6.1173


http://dx.doi.org/10.1177/0018726708094863

http://dx.doi.org/10.14419/ijans.v3i1.1494


http://dx.doi.org/10.12968/bjon.2009.18.3.39042

http://dx.doi.org/10.1016/j.ejon.2006.09.003

http://dx.doi.org/10.1053/jpmn.2000.5833

http://dx.doi.org/10.1016/s0735-6757(98)90029-8


postanesthesia care unit. *Best Practices and Benchmarking in Healthcare: A

experiences and perceptions in relation to health-related quality of life and the
multidimensionality of pain (Doctoral dissertation, Lund University, Faculty of

[http://dx.doi.org/10.1016/s0885-3924(96)00273-4](http://dx.doi.org/10.1016/s0885-3924(96)00273-4)


[http://dx.doi.org/10.1213/01.ane.0000268145.52345.55](http://dx.doi.org/10.1213/01.ane.0000268145.52345.55)

[http://dx.doi.org/10.1046/j.1365-2702.1998.00125.x](http://dx.doi.org/10.1046/j.1365-2702.1998.00125.x)

Methodology for Health Care Professionals* (2nd ed.). Cape Town: Juta.

http://dx.doi.org/10.1016/j.aeen.2004.01.008

http://dx.doi.org/10.1016/s0020-7489(03)00129-9

http://dx.doi.org/10.1016/0885-3924(95)00205-7

http://dx.doi.org/10.1016/j.pmn.2012.10.005

http://dx.doi.org/10.1111/j.1365-2702.2006.01553.x


Collier, S., Philips, D., Camp, V., & Kirk, A. (1995). The influence of attitudes to acupuncture on the outcome of treatment. *Acupuncture in Medicine, 13*(2), 74-77. [http://dx.doi.org/10.1136/aim.13.2.74](http://dx.doi.org/10.1136/aim.13.2.74)


Coulling, S. (2005). Nurses’ and doctors’ knowledge of pain after surgery. *Nursing Standard, 19*(34), 41-49. [http://dx.doi.org/10.7748/ns2005.05.19.34.41.c3859](http://dx.doi.org/10.7748/ns2005.05.19.34.41.c3859)


207


Mackintosh, C. (2007). Assessment and management of patients with post-operative pain. *Nursing Standard, 22*(5), 49-55. [http://dx.doi.org/10.7748/ns2007.10.22.5.49.c4640](http://dx.doi.org/10.7748/ns2007.10.22.5.49.c4640)


