

BELITUNG NURSING JOURNAL

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

Edited by: Assoc. Prof. Dr. Yupin Aungsuroch & Dr. Joko Gunawan

DOI: <https://doi.org/10.33546/bnj.v7i2>

Editorial

A year later: Life after the Year of the Nurse
Colleen Marzili

Review Article

Factors related to internet and game addiction among adolescents: A scoping review
Sinpathe Juthamenee, Joko Gunawan

Theory and Concept Development

The development of Need-Threat Internal Resiliency Theory in COVID-19 crisis utilizing deductive axiomatic approach
Jonaid Mustapha Sadang, Darsy R Palompon

A Proposed Theory of Symptom Cluster Management
Jerick Batlin Tabudlo

Original Research Article

Health literacy and health-promoting behaviors among adults at risk for diabetes in a remote Filipino community
Christian Sandoz B. Yarin

Social stigma towards nurses taking care of patients with COVID-19 in Indonesia: A mixed-methods study
Mansa Juniani Manik, Siska Natalia, Theresia Theresia

Knowledge and healthcare-seeking behavior of family caregivers of children with pneumonia: A qualitative study in an urban community in Indonesia
Nymas Heny Purwati, Yeri Rustina, Bambang Supriyanto

Nursing handover in the Indonesian hospital context: Structure, process, and barriers
Krisna Yetti, Nani Asma Dewi, Sri Heri Wigarti, Dina Warashati

Developing an android-based application for early detection of postpartum depression symptoms in Indonesia
Ima Nurbaiti, Moch Syafi, Kustati Budi Lestari

Working alliance among mental health nurses in Indonesia: A comparative analysis of socio-demographic characteristics
Iyus-Yosep, Henry Suzana Mediani, Linlin Lindseyani

Relationships between symptom control, medication management, and health literacy of patients with asthma in Vietnam
Doan Thi Kim Cuc, Nonglak Methakanjanasak, Ho Thi Thuy Trang

Letter to Editors

Violence against nurses: A serious issue in Indonesia
Ramadhan Tosep, Hasanuddin Nuru, Tri Hari Irfani



THE OFFICIAL PUBLICATION OF

BELITUNG RAYA FOUNDATION

Department of Publication, Indonesia

BELITUNG NURSING JOURNAL

Volume 7 Issue 2: March - April 2021

Launched in December 2015, Belitung Nursing Journal (BNJ) is a refereed international publication that provides a venue for the nursing scholarship with an Asian focus and perspectives from the region. We aim to highlight research on nursing science, nursing management, policy, education, and practice in the Asia-Pacific region and Asian communities worldwide to a broad international audience.

BNJ welcomes submissions of original research articles, review articles, concept analysis, perspectives, letter to editors, research methodology papers, study protocol, case studies, and guest editorials on various clinical and professional topics.

We also welcome "negative" results (i.e., studies which do not support a hypothesized difference or association) provided that the design was robust. Discussion papers that elaborate issues and challenges facing health care in one country are welcomed, provided the discussion is grounded in research-based evidence. The authors are addressing a global audience and a local one.

Nurses and midwives write most papers in BNJ, but there are no constraints on authorship as long as articles fit with the expressed aims and scope. BNJ's intended readership includes practicing nurses and midwives in all spheres and at all levels who are committed to advancing practice and professional development based on new knowledge and evidence; managers and senior members of the nursing and midwifery professions; nurse educators and nursing students; and researchers in other disciplines with interest in common issues and inter-disciplinary collaboration.

BNJ is an official publication of Department of Publication of Belitung Raya Foundation in Belitung Indonesia, jointly with Indonesian National Nurses Association of Belitung Indonesia (PPNI Belitung) and Prodi D3 Keperawatan Belitung Poltekkes Kemenkes RI Pangkal Pinang.

Belitung Raya Foundation is a non-profit organization that focuses on education, health, information technology, and the social and empowerment of the community. Belitung Raya Foundation is established in 2015 with an official license of establishment from the Ministry of Justice and Human Rights of the Republic of Indonesia (MENKUMHAM RI) with No: AHU-0009599.AH.01.12.Year 2015 and Notarial Deed No: 12 on 06 July 2015 by SRI ARIYAWATI, SH., M.KN.

BNJ has been accredited by the Ministry of Science, Research, Technology and Higher Education of Indonesia (RISTEKDIKTI RI) with No: 10/3/KPT/2019, valid until 2024.

BNJ is indexed in Scopus, Emerging Sources Citation Index (Web of Science), Ovid EMCare (Elsevier), DOAJ, Google Scholar, SINTA, and Garuda.

© 2021 The Authors.

First published by Department of Publication of Belitung Raya Foundation

Jalan Genayun, Komplek Perumahan Guru RT 06 RW 02, Dusun Uisan Jaya, Desa Padang, Kabupaten Belitung Timur, Manggar, Bangka Belitung, Indonesia 33512 | Mobile: +6281268251389 | Email: belitungrayafoundation@belitungraya.org and editorbnj@gmail.com

Volume 7 Issue 2: March - April 2021

Library of Congress Cataloging-in-Publication Data

Belitung Nursing Journal Volume 7 Issue 2

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

This issue is **Open Access** distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

EDITORIAL TEAM

EDITOR-IN-CHIEF

Assoc. Prof. Yupin Aungsuroch, PhD, RN
Faculty of Nursing, Chulalongkorn University, Bangkok, Thailand

INTERNATIONAL EDITORIAL ADVISORY BOARD

Prof. Mary L Fisher, PhD, RN
The FINE Center, Indiana University School of Nursing, Indianapolis, IN USA
College of Nursing, University of Florida, Gainesville, FL, USA

Prof. Josefina A Tuazon, RN, MN, DrPH
College of Nursing, University of the Philippines Manila, Manila, Philippines

Prof. Rozzano C Locsin, RN, PhD, FAAN
Florida Atlantic University, Boca Raton, FL 33431-0991 USA
Tokushima University Graduate School of Biomedical Sciences, Tokushima, Japan 770-8509

Assoc. Prof. Colleen Merzilli, PhD, DNP, MBA, RN-BC, CCM, PHNA-BC, CNE, NEA-BC
The University of Texas at Tyler, School of Nursing, 3900 University Blvd., Tyler, TX 75799, United States

MANAGING EDITOR

Joko Gunawan, S.Kep.Ners, PhD
Belitung Raya Foundation, Belitung, Indonesia

EDITORIAL BOARD MEMBERS

Assist. Prof. Rapin Polsook, PhD, RN
Faculty of Nursing, Chulalongkorn University, Bangkok, Thailand

Assist. Prof. Ying Lie, PhD, RN
School of Nursing, Dalian Medical University, Dalian, China

Barbara Lyn A. Galvez, MAN, RN, PhD
Silliman University Hibbard Avenue, Dumaguete City, Negros Oriental Philippines, Philippines

Bayu Anggileo Pramesona, S.Kep. Ns, MMR, PhD
RSD, Mayjend HM, Ryacudu Kotabumi, Lampung Utara, Indonesia

Dr. Khadziah H. Abdul Mumin, RN, RM, PhD
Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah, Institute of Health Sciences, University Brunei Darussalam, Brunei Darussalam

Feni Betriana, SKep. Ners, MNS
Belitung Raya Foundation, Belitung, Indonesia

Ha Thi Nu Xuan, RN, MNS, PhD
Nursing Department, The University of Medicine and Pharmacy, Ho Chi Minh City, Viet Nam

Jed Ray Montayre, PhD, RN
Western Sydney University, NSW, Australia

Le Thi Thanh Tuyen, RN, MNS, PhD
Faculty of Nursing, Da Nang University of Medical Technology and Pharmacy, Da Nang, Viet Nam

Mohd Khairul Zul Hasymi Bin Firdaus, BHSc, MN
Department of Medical Surgical Nursing, Faculty of Nursing, International Islamic University Malaysia, Malaysia

Soukxavanh Phanpaseuth, MNS, RN
University of Health Sciences, Lao PDR

Virya Koy, RN, SNA, MNSc, MHPed, PhD
Deputy Director of Department Hospital Services, Ministry of Health, Cambodia

COPYEDITOR & LAYOUT EDITOR

Anggie Amanda
Belitung Raya Foundation, Indonesia

JOURNAL MANAGER

Joko Gunawan, S.Kep, Ners, PhD
Belitung Raya Foundation, Belitung, Indonesia

TECHNICAL MANAGERS

Arief Hidayat Sutomo, S. Kom
PT. Bejana Investidata Globalindo, Indonesia

Apriadi
Belitung Raya Foundation, Belitung, Indonesia

TABLE OF CONTENTS

DOI: <https://doi.org/10.33546/brj.v7i2>

Editorial

- A year later: Life after the Year of the Nurse PDF
 Colleen Marzilli 59-61
 DOI : <http://dx.doi.org/10.33546/brj.1509>

Review Article

- Factors related to Internet and game addiction among adolescents: A scoping review PDF
 Siripattra Juthamanee, Joko Gunawan 62-71
 DOI : <http://dx.doi.org/10.33546/brj.1192>

Theory and Concept Development

- The development of Need-Threat Internal Resiliency Theory in COVID-19 crisis utilizing deductive axiomatic approach PDF
 Jonaid Mustapha Sadang, Daisy R Palompon 72-77
 DOI : <http://dx.doi.org/10.33546/brj.1300>
- A Proposed Theory of Symptom Cluster Management PDF
 Jerick Batin Tabudlo 78-87
 DOI : <http://dx.doi.org/10.33546/brj.1359>

Original Research Article

- Health literacy and health-promoting behaviors among adults at risk for diabetes in a remote Filipino community PDF
 Christian Sandor B. Ydirin 88-97
 DOI : <http://dx.doi.org/10.33546/brj.1298>
- Social stigma towards nurses taking care of patients with COVID-19 in Indonesia: A mixed-methods study PDF
 Marisa Junianti Manik, Siska Natalia, Theresia Theresia 98-106
 DOI : <http://dx.doi.org/10.33546/brj.1322>
- Knowledge and healthcare-seeking behavior of family caregivers of children with pneumonia: A qualitative study in an urban community in Indonesia PDF
 Nyimas Heny Purwati, Yeni Rustina, Bambang Supriyatno 107-112
 DOI : <http://dx.doi.org/10.33546/brj.1268>
- Nursing handover in the Indonesian hospital context: Structure, process, and barriers PDF
 Krisna Yetti, Nani Asna Dewi, Sri Herni Wigiarti, Dina Warashati 113-117
 DOI : <http://dx.doi.org/10.33546/brj.1293>
- Developing an android-based application for early detection of postpartum depression symptoms in Indonesia PDF
 Irma Nurbaeti, Moch Syafii, Kustati Budi Lestari 118-124
 DOI : <http://dx.doi.org/10.33546/brj.1308>
- Working alliance among mental health nurses in Indonesia: A comparative analysis of socio-demographic characteristics PDF
 Iyus Yosep, Henny Suzana Mediani, Linlin Lindayani 125-130
 DOI : <http://dx.doi.org/10.33546/brj.1259>

Relationships between symptom control, medication management, and health literacy of patients with asthma in Vietnam
Doan Thi Kim Cuc, Nonglak Methakanjanasak, Ho Thi Thuy Trang
DOI : <http://dx.doi.org/10.33546/brj.1398>

PDF
131-138

Letter to Editors

Violence against nurses: A serious issue in Indonesia
Ramadhan Tosepu, Hasanuddin Nuru, Tri Hari Irfani
DOI : <http://dx.doi.org/10.33546/brj.1491>

PDF
139-140

A year later: Life after the Year of the Nurse

Belitung Nursing Journal
Volume 7(2), 59-61
© The Author(s) 2021
<https://doi.org/10.33546/bnj.1509>

Colleen Marzilli 

The year 2020 should have been a year celebrating the remarkable contributions of nursing as a profession on society. The "International Year of the Nurse and the Midwife", was so designated by the World Health Organization to honor the 200th anniversary of Florence Nightingale's birth and highlight the important role of nurses in addressing healthcare needs globally. In light of the events of 202 and the global pandemic, the World Health Organization extended the International Year of the Nurse and the Midwife through their "Year of Health and Care Workers" campaign while global partners have extended the International Year of the Nurse and the Midwife 2020/2021 through different campaigns. What started as a year to celebrate the work of nurses in advancing and promoting health globally transformed into a dramatic showcase of the extremely hard work of nurses in fighting COVID-19. The recognition and spotlight on nurses shifted from focusing on a thriving profession advancing health to a strong profession poised to be at the bedside responding to a global threat.

It seems fitting that in the International Year of the Nurse and the Midwife, the efforts of nurses were publicized across international news outlets. Some hailed nurses as heroes. The smiling faces of nurses to celebrate such a momentous year were replaced by images of nurses with masks with a look of care and compassion in their eyes, often behind goggles, fighting COVID-19. Nursing as a profession must examine the International Year of the Nurse and the Midwife in context with the global COVID-19 pandemic and reflect on the effects to the nursing profession.

The perception of nurses across the globe is generally one of positive regard outside of the pandemic response. In fact, in the United States, nurses are known as the most trusted profession by an annual, Gallup poll (Sead, 2020). Nurses have been played by political and religious leaders across the world recognizing the importance that nurses play in society and in the pandemic response. During the

pandemic response, nurses have been excluded from society and alienated out of fear that being around a nurse will expose community members to the virus. Nurses have experienced ridicule and shame. In markets and amongst the community, instead of people seeing a nurse and consulting the nurse for health advice, nurses are told to get away. Nurses have sacrificed for the community at the expense that they are shunned by the community. Even in families, nurses may elect to stay in a separate room or location from their family so as not to expose their family. Nurses are making a huge sacrifice, and they do this out of a sense of duty, commitment, responsibility, and a sense of loyalty to their patients, their profession, and the greater global good.

There is an awareness in the global community that nurses and other healthcare workers are sacrificing for the good of the community, and there are several unique ways that communities have shown their appreciation. The Clap for Carers social movement originated in the United Kingdom by Annemarie Plas, to show support for those working in the National Health Service (NHS) received global attention as healthcare workers were recognized for approximately two months between March and May 2020. This movement garnered the support of many celebrities and politicians. Businesses, schools, and religious organizations have made different gestures to recognize the work of nurses and other healthcare workers. Some businesses have donated meals and treats to nurses while others have recognized the work of nurses through different public service announcements and campaigns to reinforce the valuable role nurses continue to play in the pandemic response. Praise continues for nurses and other healthcare workers (Gunawan, 2020).

A challenge that nurses face now is that as the pandemic response has persisted for well over a year, the public support has waned. The morale boost that nurses received from the public support was an important source of strength for nurses, especially considering the negative

The University of Texas at Tyler, USA

Corresponding author:

Colleen Marzilli, PhD, DNP, MBA, RN-BC, CCM, PHNA-BC, CNE, NEA-BC, FNAP

The University of Texas at Tyler, School of Nursing, 3800 University Blvd., Tyler, TX 75798, USA

Email: cmarzilli@uttyler.edu

Article Info:

Received: 27 April 2021

Accepted: 28 April 2021

This is an **Open Access** article distributed under the terms of the **Creative Commons Attribution-NonCommercial 4.0 International License**, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

response from some community members (Gunawan et al., 2020). With that morale boost dwindling, the overall morale has declined amongst much of the nursing profession. Combined with the stress of caring for COVID-19 patients without fully understanding the virus and the fatigue from such a prolonged fight against the virus, members of the nursing profession are reaching alarming levels of fatigue and burnout.

Nurses everywhere are facing overwhelming responsibilities to provide care for increasingly sick patients. Nurses have always done a great deal with very little resources, and this increased workload is nothing new to nurses across the globe. However, with the novel COVID-19 pandemic, novel is the key. This virus has not been seen before, and while nurses are using the best tools they have to fight this malicious virus, there is an insurmountable burden that nurses are shouldering as they provide daily care for acutely ill patients with little known about the virus. While we continue to investigate the virus and treatment modalities that are effective in treating the virus, there is still a great unknown associated with the virus. This unknown creates a significant mental barrier and adds increased stress to nurses as they blindly fight the virus.

Nurses have historically provided care in extremely difficult circumstances, and nurses are familiar with carrying the burden of care in a professional and gracious manner. Nurses render aid in traumas and disasters worldwide, and this is nothing new. From Florence Nightingale providing care to British and Turkish soldiers in the Crimean War to today where nurses aid in epidemiological responses, war, and in treating viruses like Ebola, nurses place themselves in suboptimal situations out of a sense of duty to provide care. However, what exacerbates the strain and burden to nurses with the COVID-19 pandemic is the unknown and uncertainty associated with this virus. In different parts of the globe there are different variants and different responses to the virus. Despite these challenges and the unknown, nurses are on the front lines to provide care with a smile and a will to make patients as comfortable as possible while suffering from the devastating disease.

Fatigue and burnout are common problems in nursing. Even pre-COVID, nursing was a physically, mentally, and emotionally demanding job. Nurses provide care to patients when people are at their most vulnerable state, and in that vulnerability comes fear and a lack of control. Patients may displace their fear and feelings of lack of control on the nurse, and the patient's family may also displace their fear and frustration on the nursing staff. Other healthcare team members experience stress and fatigue, and nursing often feels the effects of this stress as the healthcare team member at the bedside 24 hours a day, seven days a week. Nurses work long hours on their feet rushing from one patient to the next. Nurses are increasingly under intense pressure to discharge patients as soon as possible and make sure zero errors or mistakes are made. Short-staffing and patient over-crowding means

nurses work increasingly longer hours each week, and there are few opportunities to rest and reset towards a healthier physical, mental, and emotional outlook. Since COVID, these factors are exacerbated, and fatigue and burnout has increased (Sasangohar et al., 2020).

As a profession, nursing needs to understand the role they continue to play in fighting the COVID-19 pandemic. The role of the nurse is invaluable in fighting this deadly virus. The long hours and fear of the unknown will continue as we work to control this virus and overcome. However, the fear and burden must be reconciled with the value of the nurse. Concerns that nurses have about contracting COVID-19, just like those in the general public, and fear of infecting family members are real concerns when providing care to patients with COVID-19. Feelings of isolation when choosing to quarantine to protect the public, patients, and colleagues, and feelings of sadness when caring for patients are not improving are all real barriers and challenges that nurses face (Alharbi et al., 2020). Even if the role of the nurse goes unnoticed, underappreciated, or forgotten, the nursing profession must recognize their collective strength in fighting the virus. We must remember that 2020 was the International Year of the Nurse and Midwife and that as we progress through 2021, this designation as 2021 as the Year of Health and Care Workers, remains a tribute to the hard work and dedication of the nursing profession.

Nurses must continue to find ways to feel connected and engaged with their work so they reduce feelings of fatigue and burnout (Acob, 2020). Here are seven ways nurses can celebrate their hard work and dedication to the profession. These strategies celebrate the nursing profession and the collective strength of such an invaluable profession.

First, remember a special patient. All nurses have a story of one patient that was extremely meaningful for their career. When fatigue and burnout are looming, nurses can recall that patient and reflect on the care they were able to provide. Nurses can identify what felt rewarding and what you learned from the experience. Nurses can think about the patients in their care now and identify how they can translate that memorable patient to what they are doing now.

Second, celebrate small victories. Nurses have a demanding job with multiple competing tasks to complete of equal importance. At times, it can feel like the nurse is pulled in multiple directions at once. By celebrating small victories, such as helping a patient out of bed for the first time or assisting a family member with education they need to provide care to their loved one, nurses can remind themselves of the positive difference they have in their role as a nurse. Even small wins are worth celebrating.

Third, take a break. It can be easier to talk about taking a break instead of taking an actual break. If it is not possible to take an actual break, the nurse can take a mental break. The nurse can recall something relaxing and that brings them joy. The nurse can pause their focus on their patients and visualize that thing that provides joy. This mental break

is a strategy to help reduce some of the mental fatigue felt by nurses.

Fourth, sleep. It goes without saying that sleep is restorative. Nurses work long hours and go home to complete housework, chores, and other responsibilities. All nurses have a life outside of work, and when work is done, those other responsibilities are priorities. Nurses often sacrifice their sleep to ensure that their work and home responsibilities are maintained. Insufficient sleep is a significant factor in fatigue and burnout, and this also depresses the immune system making nurses, just like every other human, more susceptible to illnesses like COVID-19. Nurses with too little sleep are more likely to make errors in patient care, and this adds to fatigue and burnout, too. It is ok for nurses to sleep and engage in that restorative practice. Sleep is important tool for nurses to fight fatigue and burnout and stay well while fighting COVID-19.

Fifth, proper nutrition. Nurses need proper nutrition to maintain their strength at work and help fight fatigue and burnout. Proper nutrition helps nurses boost their immune system and provide the energy needed to care for patients. Nursing is physically demanding work, and proper nutrition is the fuel that provides the strength to engage in such a physically demanding profession. Proper nutrition is a key component of addressing fatigue and burnout.

Sixth, do something that brings joy. While it may be difficult to find joy while working and providing care to patient, especially COVID-19 patients, it is important to do something that brings joy to the nurse outside of working hours. Perhaps the nurse enjoys reading, sewing, playing cards, watching television, or listening to music, whatever is a source of joy should be identified. Nurses should aim to do at least one thing that brings joy daily. During days where the nurse does not work, the nurse should aim to do at least three things that bring joy.

Seventh, reconnect to the profession of nursing. While it may seem counter-intuitive to reconnect to the profession when nurses are feeling fatigue and the burnout associated with providing care to patients suffering from COVID-19, nurses should challenge themselves to connect to the profession. Nurses can identify what led them to nursing and what they have found to be rewarding about nursing as a profession. Nurses should reconnect to the historical roots of nursing and the 200-year history of nursing as a profession since Florence Nightingale. The nursing profession has a long history of providing care, and reconnecting to the nursing profession can be a good reminder that nurses are part of an invaluable profession with a legacy of providing much needed care.

The International Year of the Nurse and the Midwife garnered attention and make history for the nursing profession, but not as originally intended. Nurses have sacrificed greatly, both professionally and personally, to

provide the necessary care for COVID-19 patients. Nurses are invaluable member of the healthcare team, and despite the burnout, fatigue, public recognition, and social media campaigns to recognize nursing, nurses must capitalize on the 2020 International Year of the Nurse and the Midwife campaign and look forward to the 2021 Year of Health and Care Workers campaigns and focus on recognizing the value of nursing as a profession in society. Nurses face challenges daily, and burnout and fatigue are real. Nurses are encouraged to try seven recommendations to fight burnout and fatigue and celebrate being a member of such a profession as nursing.

Keywords

nurse; COVID-19; pandemic; midwife; burnout; professional; fatigue

Declaration of Conflicting Interest

The author declares no conflict of interest in this study.

Funding

This research did not obtain any research funding from any agency.

Author Biography

Colleen Marzilli, PhD, DNP, MBA, RN-BC, CCM, PHNA-BC, CNE, NEA-BC, FNAP is Associate Professor at the University of Texas at Tyler. She is also on the Editorial Advisory Board of *Belitung Nursing Journal*.

References

- Acob, J. R. U. (2020). Appreciating positivity of COVID-19. *Belitung Nursing Journal*, 6(6), 226-228. <https://doi.org/10.33548/bnj.1214>
- Alharbi, J., Jackson, D., & Usher, K. (2020). The potential for COVID-19 to contribute to compassion fatigue in critical care nurses. *Journal of Clinical Nursing*, 29(15-16), 2762-2764. <https://doi.org/10.1111/jocn.15314>
- Gunawan, J. (2020). COVID-19: Praise is welcome, but nurses deserve a pay rise. *Belitung Nursing Journal*, 6(5), 150-151. <https://doi.org/10.33548/bnj.1217>
- Gunawan, J., Aunguroch, Y., & Marzilli, C. (2020). 'New Normal' in Covid-19 era: A nursing perspective from Thailand. *Journal of the American Medical Directors Association*, 21(10), 1514-1515. <https://doi.org/10.1016/j.jamda.2020.07.021>
- Sead, L. (2020). U.S. ethics ratings rise for medical workers and teachers. *Gallup*. Retrieved from <https://news.gallup.com/poll/326136/ethics-ratings-rise-medical-workers-teachers.aspx>
- Sasangohar, F., Jones, S. L., Masud, F. N., Vahidy, F. S., & Kash, B. A. (2020). Provider burnout and fatigue during the COVID-19 pandemic: Lessons learned from a high-volume intensive care unit. *Anesthesia and Analgesia*. <https://doi.org/10.1213/ANE.0000000000004886>

Cite this article as: Marzilli, C. (2021). A year later: Life after the Year of the Nurse. *Belitung Nursing Journal*, 7(2), 59-61. <https://doi.org/10.33548/bnj.1509>

Factors related to Internet and game addiction among adolescents: A scoping review

Belitung Nursing Journal
Volume 7(2), 62-71
© The Author(s) 2021
<https://doi.org/10.33546/bnj.1192>

Siripattra Juthamane^{1*} and Joko Gunawan²

Abstract

Background: Understanding factors influencing Internet and game addiction in children and adolescents is very important to prevent negative consequences; however, the existing factors in the literature remain inconclusive.

Objective: This study aims to systematically map the existing literature of factors related to Internet and game addiction in adolescents.

Methods: A scoping review was completed using three databases - Science Direct, PROQUEST Dissertations and Theses, and Google Scholar, which covered the years between 2009 to July 2020. Quality appraisal and data extraction were presented. A content analysis was used to synthesize the results.

Results: Ultimately, 62 studies met inclusion criteria. There were 82 associated factors identified and grouped into 11 categories, including (1) socio-demographic characteristics, (2) parental and family factors, (3) device ownership, Internet access and location, social media, and the game itself, (4) personality/traits, psychopathology factors, self-efficacy, (5) education and school factors, (6) perceived enjoyment, (7) perceived benefits, (8) health-compromising behaviors, (9) peers/friends relationships and supports, (10) life dissatisfaction and stress, and (11) cybersafety.

Conclusion: Internet and game addiction among adolescents are multifactorial. Nurses should consider the factors identified in this study to provide strategies to prevent and reduce addiction in adolescents.

Keywords

adolescent; addictive behavior; Internet; gaming; influencing factors; nursing

Internet addiction has become a significant concern in the public and scientific communities today. Although the Internet has become an indispensable tool in the adolescent population for entertainment, communication, information, academic search, and social recognition (Frangos et al., 2011), there is strong evidence that those who addict to the Internet has a negative influence on their lives, such as sleep, academic performance, and relationship with others (Milani et al., 2018). It is also similar to individuals who enjoy games. Although games have become a major leisure activity for releasing stress, heavy users tend to be isolated and lack confidence and social skills (Herodotou et al., 2012).

There have been a wide variety of terms examining the Internet and gaming addiction, such as "Internet gaming

disorder", "problematic online gamers", "problem video game use", "problematic Internet use", "Internet addictive behavior", "digital game addiction", "excessive use of the Internet and online gaming", "online game addiction", "persistence of Internet addiction", "smartphone addiction", "unregulated Internet use", "pathological Internet use", and "overuse of Internet". In this study, we use the terms "Internet and game addiction" for the sake of consistency.

Although the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-5) has described game addiction (American Psychiatric Association, 2013), it is still a lack of evidence to consider the condition as a unique mental disorder. In addition, this condition is only limited to gaming, not including the general use of the Internet, social media,

¹ Faculty of Nursing, Rajamangala University of Technology Thanyaburi, Thailand

² Belitung Raya Foundation, East Belitung, Bangka Belitung, Indonesia

Corresponding author:

Siripattra Juthamane, MNS, RN

Faculty of Nursing, Rajamangala University of Technology Thanyaburi,
38 Moo 1, Klong 6, Klong Luang Pathum Thani 12110 Thailand.
Email: ying.nur19@gmail.com

Article info:

Received: 1 September 2020

Revised: 23 October 2020

Accepted: 18 March 2021

This is an **Open Access** article distributed under the terms of the [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/), which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-161X

smartphones, and online gaming. Therefore, it has led to a degree of ambiguity in understanding the concept of Internet and gaming addiction, which needs further clarification. However, in this review, we did not limit our exploration to gaming only. All terms related to the Internet, social media, and online or offline gaming, with the use of mobile phones, computers, or laptops, were included because all of them were mainly about non-substance addiction, which has a lot in common with substance addictions.

Despite multiple constructs of addiction in the literature, in this study, addiction is defined based on the following four points, including 1) excessive use, or increasing time and frequency, 2) persistent, maladaptive preoccupation, and craving, or feeling an irresistible urge to play computer games, 3) having characteristics of withdrawal behaviors, tolerant behavior, loss of control, negative repercussions, 4) having negative effects on academic or work performance, interpersonal relationships, financial or physical problems, and gaining or losing weight (Chen et al., 2015; Hu et al., 2017; Milani et al., 2018; Müller et al., 2015). If there are no negative consequences, it will not be considered an addiction because it can be an adaptive user instead of a maladaptive user.

It is undebatable that Internet and gaming addiction has tremendous impacts on adolescents. Therefore, its related factors warrant further exploration. Although previous studies have found several factors influencing Internet and gaming addiction, such as individual characteristics (Rho et al., 2016), parenting behavior (Kwak et al., 2018), education (Karaca et al., 2020), and other factors. However, these factors are somewhat inconclusive. Therefore, the aim of this study was to explore the factors related to Internet and game addiction in adolescents. The research question in this review was, "what are the factors associated with Internet and game addiction in adolescents?" This study is expected to help pediatric nurses or mental health nurses to reduce addiction among adolescents.

Methods

Search Methods

Three databases used in this study, including Science Direct, ProQuest, and Google Scholars. The key words include "Internet AND game AND addiction OR addictive behavior OR behavior AND antecedents OR factors AND consequences AND adolescents AND young adolescents AND early adolescents AND children." The reason we included children due to the fact that many addictions adolescents start during the children period. The search strategy was just limited to ten years, ranged from January 2009 - July 2020 to get the current literature.

Inclusion and Exclusion Criteria

The inclusion criteria of the article were all research studies with qualitative and quantitative approaches, full-text articles and theses or dissertations, and available in English. The exclusion criteria were review articles, editorials, letters to editors, magazines, or gray literature.

Screening

The screening of the article was done by both authors, which included the title, abstract, and full-text. All articles that meet inclusion criteria were included.

Data Extraction

Data were extracted using a table, which consists of the author's name, year, country, objective, theoretical framework, attributes/dimensions, antecedents, instruments, and study design.

Quality Appraisal

To ensure the quality of each study, a quality appraisal tool adapted from previous studies (Gunawan et al., 2018; Keyko et al., 2016) was used for the correlational study. Each study was categorized as high (10-14), moderate (5-9), and low (0-4) quality. For qualitative studies, the Critical Skills Appraisal Program (CSAP) was used (Casp, 2010). Areas for assessments were research design, measurement, sampling, data collection, ethical issues, and data analysis.

Data Analysis

Content analysis was used to synthesize the results from both the quantitative and qualitative studies (Grove et al., 2012). This content analysis is specifically to merge the factors into categories.

Results

Search Results

There were 36,672 potential articles identified from the initial search (Table 1). In the stage of title screening, we removed 30,150 articles due to unrelated topics with Internet and game addiction, and 6,522 articles were left for further evaluation. In the stage of abstract screening, 5,445 articles were excluded due to inadequate in terms of inclusion criteria, and 1,077 articles were retained for further exploration. Ultimately, 62 articles were included (see Figure 1). The characteristics of the included studies can be seen in the [supplementary file](#).

Table 1 Database Searching

Database 2009 – July 2020	Retrieved
Science Direct	6,727
PROQUEST Dissertations and Theses	11,945
Google Scholar	18,000
Total retrieved titles	36,672

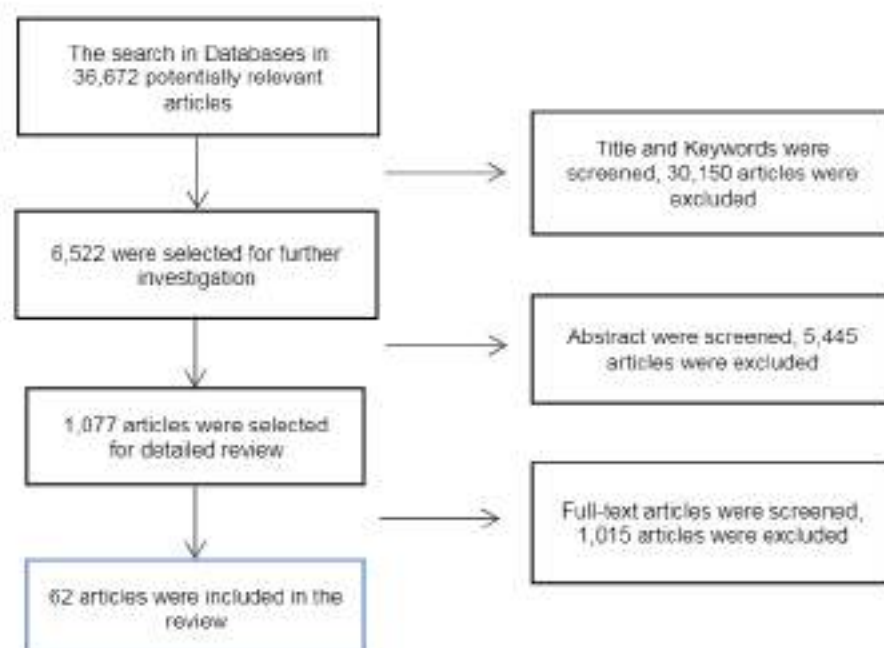


Figure 1 The Review Process based PRISMA Flow Chart

Quality Assessment

Majorities of the studies employed a correlational cross-sectional study design. Six studies used a longitudinal design, and one study was qualitative. Among 62 studies, only 22 studies used probability sampling, 11 studies used non-probability sampling, and 29 studies did not report sampling methods. In the quality assessment of all studies, 52 studies were at medium level and ten studies at a high level. The majority of the studies used three scales for measuring Internet and game addiction as developed by Lemmens et al. (2009), Chen et al. (2003), and Young (1998). There were various countries identified in the studies, including Serbia, Germany, Greece, Iceland, The Netherlands, Poland, Romania, Spain, Geneva, Taiwan, Australia, Turkey, United Kingdom, China, Hong Kong,

Italy, Norway, Malaysia, Mongolia, Korea, Czech Republic, France, Singapore, Iran, Thailand, India, United States, and Nigeria (see [Supplementary file](#)).

Analytical Findings

A total of 82 factors were identified and synthesized into 11 categories, including 1) socio-demographic characteristics, 2) parent and family factors, 3) device ownership, Internet access, and location, social media, and the game itself, 4) personality/traits, psychopathology factors, self-efficacy, 5) education and school factors, 6) perceived enjoyment, 7) perceived benefits, 8) health-compromising behaviors, 9) peers/friends relationships and supports, 10) life dissatisfaction and stress, and 11) cybersafety (see [Table 2](#)).

Table 2 Factors related to the game or Internet addiction

Related Factors	Authors
1. Socio-Demographic Characteristics	
Age	(Bianchini et al., 2017; Hyun et al., 2015; Karaca et al., 2020; Lim & Nam, 2018; Müller et al., 2015; Rehbein et al., 2010; Tsitsika et al., 2014)
Gender	(Chen et al., 2015; Choo et al., 2015; Dhir et al., 2015; Frangos et al., 2011; Hyun et al., 2015; Loo et al., 2017; Lin et al., 2011; Müller et al., 2015; Samarain et al., 2013; Spilkova et al., 2017; Sul, 2015; Toker & Baturay, 2016; Walther et al., 2012)
Residence type (alone, with parents, with relatives)	(Frangos et al., 2011)
Individual marital status	(Rho et al., 2016)
Parental marital status	(Frangos et al., 2011; Müller et al., 2015)
Parental education	(Karaca et al., 2020; Müller et al., 2015; Tsitsika et al., 2014; Wu, Zhang, et al., 2016)
Parental employment status	(Karaca et al., 2020)
Parental economic/income status	(Toker & Baturay, 2016; Walther et al., 2012; Wu, Zhang, et al., 2016)

Table 2 (Cont.)

2. Parent and Family Factors

Parent factors

- Parent-child relationship (Choo et al., 2015; King & Delfabbro, 2017)
- Parental monitor/control (Bonnaire & Phan, 2017; Ding et al., 2017; Li et al., 2014; Walther et al., 2012; Wu, Zhang, et al., 2016)
- Parental conflict (Bonnaire & Phan, 2017)
- Parent positive support (Li et al., 2014)
- Parental neglect (Kwak et al., 2018)
- Parental knowledge (Tian et al., 2019)

Family factors

- Family relationship (Bonnaire & Phan, 2017)
- Multicultural families (Choi & Yoo, 2015)
- Dual-income families (Choi & Yoo, 2015)
- Family function (Charoenwanit & Sumneangsator, 2014)
- Family leisure (Sul, 2015)

3. Device Ownership, Internet Access, Location, Social Media & Game itself

Device ownership

(Smith et al., 2015; Tokar & Baturay, 2016)

Access /Subscription to Internet

(Frangos et al., 2011; Wu, Zhang, et al., 2016)

Game itself

- Games genre (Lee & Kim, 2017; Müller et al., 2015)
- Online and computer games (Tokar & Baturay, 2016; Tsitsika et al., 2014)
- Structural characteristics of video game (Hull et al., 2013)
- Gaming cost (Rho et al., 2016)

Social media applications

(Kuss et al., 2013)

Location (such as the bedroom)

(Smith et al., 2015)

4. Personality/Traits, Psychopathology Factors, & Self-Efficacy

Personality/ traits

- Self-esteem (Billeux et al., 2015; Charoenwanit & Sumneangsator, 2014; Hyun et al., 2015; Walther et al., 2012)
- Impulsivity (Walther et al., 2012)
- Sensation seeking (Walther et al., 2012)
- Aggression/Rule-breaking behavior/irritability (Tsitsika et al., 2014; Walther et al., 2012)
- Extraversion (Andreassen et al., 2013; Kuss et al., 2013; Samarin et al., 2013)
- Introversion (Torres-Rodriguez et al., 2018)
- Neuroticism (anxiety, anger, depression, loneliness, hostility, emotional stability) (Andreassen et al., 2013; Dong et al., 2013; Hyun et al., 2015; Jeong et al., 2015; Kuss et al., 2013; Mehroof & Griffiths, 2010; Samarin et al., 2013; Tsitsika et al., 2014; Vukosavljevic-Gvozden et al., 2015; Walther et al., 2012) (Chang et al., 2014; Hyun et al., 2015; Jeong et al., 2015; Latorri et al., 2017; Lin et al., 2011; Moslehpour & Batjargal, 2013; Tsitsika et al., 2014; Vukosavljevic-Gvozden et al., 2015; Walther et al., 2012)
- Conscientiousness (Samarin et al., 2013; Stavropoulos et al., 2016)
- Agreeableness (Andreassen et al., 2013; Kuss et al., 2013; Samarin et al., 2013; Walther et al., 2012)
- Resourcefulness (Kuss et al., 2013)
- Openness to experience (Andreassen et al., 2013)
- Psychoticism/socialization (Dong et al., 2013)
- Self-control (Li et al., 2014)
- Effortful control (Ding et al., 2017)
- IQ (Hyun et al., 2015)

Psychopathology

- Obsessive-compulsive (Vukosavljevic-Gvozden et al., 2015) (Torres-Rodriguez et al., 2018)
- Interpersonal sensitivity (Vukosavljevic-Gvozden et al., 2015) (Torres-Rodriguez et al., 2018)
- ADHD (Chen et al., 2015; Hyun et al., 2015; Walther et al., 2012)
- Irrational beliefs/ ubiquitous trait (Lee et al., 2017; Vukosavljevic-Gvozden et al., 2015)
- Autistic traits (Chen et al., 2015)
- Paranoid ideation (Torres-Rodriguez et al., 2018; Vukosavljevic-Gvozden et al., 2015)
- Impaired social adjustment (Chen et al., 2015)
- Self-devaluation (Torres-Rodriguez et al., 2018)
- Borderline (Torres-Rodriguez et al., 2018)
- Attention problem (Peeters et al., 2018)
- Insecure attachment (Lin et al., 2011)

Table 2 (Cont.)

• Somatization	(Vukosavljevic-Gvozden et al., 2015)
• Anxiety (trait anxiety, state anxiety, and phobic anxiety)	(Mehroof & Griffiths, 2010; Torres-Rodríguez et al., 2018; Vukosavljevic-Gvozden et al., 2015)
• Perseverative errors	(Hyun et al., 2015)
• Lie	(Dong et al., 2013)
Self-efficacy	(Jeong et al., 2015; Lin et al., 2011; Walther et al., 2012)
5. Education & School Factors	
Academic performance	(Chen et al., 2015; Lin et al., 2011; Wu, Zhang, et al., 2016)
School bonding/ Relationship with teachers	(Chang et al., 2014; Lee & Kim, 2017)
School well-being	(Rehbein et al., 2010)
6. Perceived Enjoyment	
The feeling of excitement, relief from negative emotion, passing time	(Billeux et al., 2015)
Entertainment	(Moslehpour & Batjargal, 2013)
Flow	(Hull et al., 2013; Sun et al., 2015)
Leisure environment	(Lee & Kim, 2017)
Gratification, general happiness	(Dhir et al., 2015; Hull et al., 2013)
Perceived visibility & enjoyment	(Sun et al., 2015)
Preoccupation	(Lee et al., 2017)
7. Perceived Benefits	
Using the Internet to communicate on important matters	(Adele & Olatokun, 2014)
Making money	(Adele & Olatokun, 2014)
Use for learning	(Lee et al., 2017)
Making friends	(Billeux et al., 2015; Kim & Kim, 2017; Moslehpour & Batjargal, 2013; Porter et al., 2010)
Online self-identity	(Kim & Kim, 2017)
Getting-sex oriented materials	(Adele & Olatokun, 2014)
8. Health-Compromising Behaviors	
Smoking	(Chang et al., 2014; Frangos et al., 2011; Spilkova et al., 2017; Toker & Baturay, 2018)
Drinking (alcohol & coffee)	(Frangos et al., 2011) (Spilkova et al., 2017)
Using drugs	(Frangos et al., 2011)
9. Peers/Friends Relationships and Supports	
Peer relationship & support	(Kwak et al., 2018; Lee & Kim, 2017; Wu, Ko, et al., 2016; Wu, Zhang, et al., 2016)
Peer affiliation	(Ding et al., 2017)
Community attendance	(Rho et al., 2016)
10. Life Dissatisfaction & Stress	(Moslehpour & Batjargal, 2013; Peeters et al., 2018)
11. Cybersafety	(Smith et al., 2015)

Discussion

There were eleven groups of factors that emerged in the findings of this study as following.

Socio-Demographic Characteristics

There were eight factors of the Internet and game addiction according to socio-demographic characteristics: (1) *Age*, there were seven studies have provided the significant correlation between age and Internet and game addiction (Bianchini et al., 2017; Hyun et al., 2015; Karaca et al., 2020; Lim & Nam, 2018; Müller et al., 2015; Rehbein et al., 2010; Tsitsika et al., 2014). Karaca et al. (2020) revealed that Internet and game addiction was significantly in the older age of adolescents than in the younger age group. Rehbein et al. (2010) found that 15-year-old children were shown the specific risk factors of addiction at the age of ten years; (2) *Gender*, 13 studies discussed the linkage between gender and Internet and game addiction, which predominantly specific to males (Chen et

al., 2015; Choo et al., 2015; Dhir et al., 2015; Frangos et al., 2011; Lin et al., 2011; Müller et al., 2015; Samarin et al., 2013; Sul, 2015; Toker & Baturay, 2016; Walther et al., 2012) than females (Lee et al., 2017). Hyun et al. (2015); Spilkova et al. (2017) stated that females are more prone to online communication and social media use, while males are more likely to online gaming; (3) *Residence type*, Frangos et al. (2011) revealed that those who were not staying with parents are highly associated with Internet addiction; (4) *Individual marital status*, Rho et al. (2016) found that those who are single are more prone to Internet addiction than those who are married; (5) *Parental marital status*, Frangos et al. (2011); Müller et al. (2015) revealed that those who have divorced parental condition are more addicted to Internet or game online; (6) *Parental education*, Wu, Zhang, et al. (2016) said mother's and father's education significantly correlate with Internet addiction. Karaca et al. (2020) found that those having parents who completed high school or a higher education level are more likely to be addicted to online game

addiction. Conversely, Müller et al. (2015) revealed that those who have a mother with no formal education (not father's education) are more addicted to Internet gaming addiction; (7) *Parental employment status*, Karaca et al. (2020) found that a mother who is employed is considered a factor of online game addiction in adolescents; (8) *Parental economic/income status*, Tokar and Baturay (2016) and Wu, Zhang, et al. (2016) found that socioeconomic status or per capita annual household income is significantly related to the addiction rate, Walther et al. (2012) and Wu, Zhang, et al. (2016) revealed that high economic status tends to have problematic computer gaming in adolescents.

Parent and Family Factors

We discussed parent and family factors separately. For parental factors, there were six factors associated with the Internet and game addiction: (1) *Parent-child relationship*, Choo et al. (2015) revealed that parent-child relationship is an important predictor of the Internet or game addiction although King and Delfabbro (2017) stated that parent-child relationships have a weak correlation with Internet addiction; (2) *Parental monitor/control*, Bonnaire and Phan (2017); Wu, Zhang, et al. (2016) found that parental monitoring is correlated with Internet and game addiction. Walther et al. (2012) emphasize that lower parental monitoring is consistently associated with addictive behaviors. But, Ding et al. (2017) explained it differently that deviant peer affiliation is partially mediated the correlation between parental monitoring and Internet addiction, while Li et al. (2014) said that Internet addiction was explained positively by parents' negative control; (3) *Parental conflict*, Bonnaire and Phan (2017) found that parental conflict is significantly related to Internet gaming addiction; (4) *Parent positive support*, Li et al. (2014) found that parents' positive support was negatively correlated with Internet addiction; (5) *Parental neglect*, Kwak et al. (2018) found that smartphone addiction was significantly influenced by parental neglect; and (6) *Parental knowledge*, Tian et al. (2019) found that those with low parental knowledge are more addicted than those with high parental knowledge.

For family factors, the studies indicated that those with poorer family relationships, multicultural and dual-income families, and poor family function are likely to be addicted more to the Internet and game addiction (Bonnaire & Phan, 2017; Choi & Yoo, 2015; Sul, 2015). In addition, Sul (2015) revealed that family leisure is one factor that correlates with Internet game addiction, in which the adolescents could join the family to enjoy the environment.

Device Ownership, Internet Access, Location, Social Media & Game Itself

According to Smith et al. (2015) and Tokar and Baturay (2016), device and computer ownership are related to game addiction. Additionally, Frangos et al. (2011) said that subscription to the Internet is associated with Internet addiction, while Wu, Zhang, et al. (2016) found Internet

café where adolescents could access the Internet is related to addiction.

Of course, without online and computer games or social media applications, the addictive behavior will not occur (Kuss et al., 2013; Tokar & Baturay, 2016; Tsitsika et al., 2014). Müller et al. (2015) said that all game genres are related to Internet gaming disorder. Lee and Kim (2017) found that simulation, RPG, and casual games were positively correlated with addictive behavior. In addition, structural characteristics of the game influence the level of addiction (Hull et al., 2013), while Rho et al. (2016) revealed that gaming cost is also an important factor of the Internet and game addiction. Besides, Smith et al. (2015) found that bedroom location is associated with video-game play, which leads to addiction.

Personality Factors/ Traits, Psychopathology Factors, and Self-Efficacy

There were 15 personality factors or traits that are related to Internet and game addiction, including low self-esteem (Billieux et al., 2015; Charoenwanit & Sumneangsanor, 2014; Hyun et al., 2015; Walther et al., 2012), high impulsivity and sensation seeking (Walther et al., 2012), aggression/ rule breaking behavior/ irritability (Tsitsika et al., 2014; Walther et al., 2012), extraversion (Andreassen et al., 2013; Kuss et al., 2013; Samarein et al., 2013), introversion (Torres-Rodriguez et al., 2018), neuroticism (anxiety, anger, depression, loneliness, hostility, emotional stability) (Andreassen et al., 2013; Dong et al., 2013; Hyun et al., 2015; Jeong et al., 2015; Kuss et al., 2013; Mehroo & Griffiths, 2010; Samarein et al., 2013; Tsitsika et al., 2014; Vukosavljevic-Gvozden et al., 2015; Walther et al., 2012) (Chang et al., 2014; Hyun et al., 2015; Jeong et al., 2015; Laconi et al., 2017; Lin et al., 2011; Moslehpour & Batjargal, 2013; Tsitsika et al., 2014; Vukosavljevic-Gvozden et al., 2015; Walther et al., 2012), conscientiousness (Andreassen et al., 2013; Kuss et al., 2013; Samarein et al., 2013; Stavropoulos et al., 2016), agreeableness (Andreassen et al., 2013; Kuss et al., 2013; Samarein et al., 2013; Walther et al., 2012), resourcefulness (Kuss et al., 2013), openness to experience (Andreassen et al., 2013), psychoticism/ socialization (Dong et al., 2013), low self-control (Li et al., 2014), and effortful control (Ding et al., 2017), IQ (Hyun et al., 2015).

Specifically, Andreassen et al. (2013) found that extraversion is positively associated with Internet and game addiction, while Kuss et al. (2013); Samarein et al. (2013) found that extraversion is negatively correlated with the addiction. Neuroticism (Andreassen et al., 2013; Samarein et al., 2013) and resourcefulness (Kuss et al., 2013) are positively related to addiction, while conscientiousness (Andreassen et al., 2013; Kuss et al., 2013; Samarein et al., 2013; Stavropoulos et al., 2016), agreeableness (Andreassen et al., 2013; Kuss et al., 2013; Samarein et al., 2013), and openness to experience (Andreassen et al., 2013), are negatively correlated to addiction. For effortful control, Ding et al. (2017) found that

the correlation between parental monitoring and deviant peer affiliation is moderated by effortful control, which in turn increases Internet addiction.

Psychopathology Factor

There were direct and indirect relationships between psychopathology factors and the Internet and game addiction. Vukosavljevic-Gvozden et al. (2015) found that somatization, phobic anxiety, depression, obsessive-compulsive, interpersonal sensitivity, anxiety, paranoid ideation, hostility, and psychoticism are mediating factors of game addiction. In comparison, Torres-Rodriguez et al. (2018) found that obsessive-compulsive, interpersonal sensitivity, paranoia, self-devaluation, and borderline are direct factors of Internet and game addiction. Lee et al. (2017) also found that ubiquitous trait is directly associated with addiction. The other direct factors of addiction include ADHD (Chen et al., 2015; Hyun et al., 2015; Walther et al., 2012), autistic traits (Chen et al., 2015), impaired social adjustment (Chen et al., 2015), attention problem (Peeters et al., 2018), insecure attachment (Lin et al., 2011), perseverative errors (Hyun et al., 2015), and lie (Dong et al., 2013). For anxiety, Mehroof and Griffiths (2010) found that online gaming addiction was significantly associated with trait and state anxiety. While phobic anxiety, according to Vukosavljevic-Gvozden et al. (2015), is considered a mediator of game addiction.

In regards to self-efficacy, Jeong et al. (2015) found that game addiction is negatively influenced by general self-efficacy but positively affected by game self-efficacy. Lin et al. (2011) also found that lower refusal self-efficacy of Internet use increases addiction, and Walther et al. (2012) revealed that social self-efficacy is related to game addiction.

Education & School Factors

There are three education and school factors: 1) *academic performance*, Chen et al. (2015) and Lin et al. (2011) found that Internet addiction was significantly correlated with poor academic performance. Wu, Zhang, et al. (2016) emphasized that the adolescents who had very poor academic performance were 2.4 times more likely to report Internet addiction than those who had first-class academic performance; 2) *school bonding or relationship with teachers*, Chang et al. (2014) found that there was an increase in online activities for those with lower school bonding in grade 10. Similar to Lee and Kim (2017), who revealed that the respondents with less satisfaction with their relationships with teachers were more likely to be game addicts; 3) *school well-being*, Rehbein et al. (2010) revealed that students with low experienced school well-being are related to game addiction.

Perceived Enjoyment

Perceived enjoyment is considered a direct factor of addiction, which consist of the feeling of excitement, relief from negative emotion, passing time (Billieux et al., 2015), entertainment (Moslehpour & Batjargal, 2013), flow (Hull

et al., 2013; Sun et al., 2015), leisure environment (Lee & Kim, 2017), gratification (Dhir et al., 2015; Hull et al., 2013), perceived visibility and enjoyment (Sun et al., 2015), and preoccupation (Lee et al., 2017). In terms of flow, Sun et al. (2015) added that flow directly affects addiction but also acted as mediating variable of perceived visibility and enjoyment.

Perceived Benefits

Adiele and Olatokun (2014) found that the benefits or extrinsic factors of Internet addiction were for communication on important matters, making money (especially amongst females), getting-sex oriented materials. Billieux et al. (2015); Kim and Kim (2017); Moslehpour and Batjargal (2013); Porter et al. (2010) revealed that making friends is the reason for addiction. Additionally, Lee et al. (2017) stated that the Internet was used for learning, while Kim and Kim (2017) found that online self-identity is also one of the reasons for addiction.

Health-Compromising Behaviors

The health-compromising behaviors that are associated with the Internet and game addiction are likely related to smoking (Chang et al., 2014; Frangos et al., 2011; Spilkova et al., 2017; Toker & Baturay, 2016), drinking alcohol (Frangos et al., 2011; Spilkova et al., 2017), and using the drug (Frangos et al., 2011). Interestingly, Frangos et al. (2011) also said that drinking coffee is one factor of addiction.

Peers/Friends Relationships and Supports

The relationships between peer and support and Internet and game addiction have been discussed in four studies (Kwak et al., 2018; Lee & Kim, 2017; Wu, Ko, et al., 2016; Wu, Zhang, et al., 2016). Kwak et al. (2018) said that smartphone addiction was negatively influenced by the relational maladjustment with peers, while Wu, Ko, et al. (2016) stated that peer influences (invitation to play, frequency of Internet game use, and positive attitudes toward Internet gaming) were positively associated with Internet gaming addiction. Peer influence was also mediated through the positive outcome expectancy of Internet gaming. According to Ding et al. (2017), peer affiliation is considered a mediating variable of the relationship between Internet addiction and perceived parental monitoring. Rho et al. (2016) stated that Internet gaming community meeting attendance is also the factor of addiction.

Life Dissatisfaction & Stress

Moslehpour and Batjargal (2013) found that stress is the factor that influences Internet addiction among adolescents, while Peeters et al. (2018) found that life dissatisfaction was the predictor of Internet addiction.

Cybersafety

Only one study discusses the relationship between cybersafety and game addiction, as indicated by Smith et

al. (2015). This is, however, considered as an important factor that parents should discuss cyber safety as the protective factor of Internet or game addiction.

Summary of the Findings

The strong evidence of the number of studies in our review can be compared with a large volume of literature on the Internet and gaming addiction among adolescents. To understand the issues related to addiction, it is necessary to understand how factors are correlated with another from 11 categories retrieved by this review. The majority of the factors are found to be directly associated, while some are mediated by the others, specifically between personality/traits, psychopathology factors, and addiction.

However, if all those factors are seen from internal and external categories, socio-demographic characteristics, personality/traits, psychopathology factors, self-efficacy, perceived enjoyment, perceived benefits, health-compromising behaviors, life dissatisfaction, and stress can be considered internal factors. While parent and family factors, device ownership, Internet access and location, social media, and the game itself, education and school factors, peers or friends' relationships and supports, and cybersafety are considered external factors.

This study provides a comprehensive review of the factors associated with the Internet and gaming addiction among adolescents. However, those factors need further validation and determine how they are related to each other. This study's limitation may include that the Internet and gaming addiction in some studies were not well defined. Hence, it is possible that some important articles might not be included in this study. In addition, if the Internet and gaming addiction is considered different and in terms of the target population between children and adolescents, then the findings of this study are limited. However, this study provides the implication for pediatric nurses or community nurses in dealing with adolescents with Internet and gaming addiction. The factors identified in this study can be used as basic information to provide intervention to decrease addiction levels.

Conclusion

Understanding the factors related to Internet and game addiction can help the development of adolescents. This systematic review shows that factors related to the Internet and gaming addiction are multifactorial and not well understood. There were 82 factors identified and categorized into 11 groups: (1) socio-demographic characteristics, (2) parent and family factors, (3) device ownership, internet access, and location, social media, and the game itself, (4) personality/traits, psychopathology factors, self-efficacy, (5) education and school factors, (6) perceived enjoyment, (7) perceived benefits, (8) health-compromising behaviors, (9) peers/friends relationships and supports, (10) life dissatisfaction and stress, and (11) cybersafety. Further research is needed to validate the factors and clarify the linkage among factors.

Declaration of Conflicting Interest

The authors have no conflict of interest to declare.

Funding

This research received no specific grant from any funding agency.

Authors' Contributions

All authors contributed equally to conceptualization, methodology, validation, literature review, data collection, analysis, data interpretation, and writing and editing of the manuscript. Both authors agreed with the final version of the article.

Data Availability Statement

All data generated or analyzed during this study are included in this published article (and its [supplementary information file](#)).

Authors Biographies

Siripattra Juthamanee, MNS, RN is a Lecturer at the Faculty of Nursing, Rajamangala University of Technology Thanyaburi, Thailand.

Joko Gunawan, PhD, RN is a Director of Belitung Raya Foundation, Bangka Belitung, Indonesia.

References

- Adiele, I., & Olatokun, W. (2014). Prevalence and determinants of Internet addiction among adolescents. *Computers in Human Behavior*, 31, 100-110. <https://doi.org/10.1016/j.chb.2013.10.028>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association.
- Andreassen, C. S., Griffiths, M. D., Gjertsen, S. R., Krossbakken, E., Kvam, S., & Pallesen, S. (2013). The relationships between behavioral addictions and the five-factor model of personality. *Journal of Behavioral Addictions*, 2(2), 90-99. <https://doi.org/10.1556/jba.2.2013.003>
- Bianchini, V., Cecilia, M. R., Roncone, R., & Cofini, V. (2017). Prevalence and factors associated with problematic Internet use: An Italian survey among L'Aquila students. *Rivista di Psichiatria*, 52(2), 90-93.
- Billieux, J., Thorens, G., Khazaal, Y., Zuffino, D., Achab, S., & Van der Linden, M. (2015). Problematic involvement in online games: A cluster analytic approach. *Computers in Human Behavior*, 43, 242-250. <https://doi.org/10.1016/j.chb.2014.10.055>
- Bonnaire, C., & Phan, O. (2017). Relationships between parental attitudes, family functioning and Internet gaming disorder in adolescents attending school. *Psychiatry Research*, 255, 104-110. <https://doi.org/10.1016/j.psychres.2017.05.030>
- Carli, V., Durkee, T., Wasserman, D., Hladick, G., Despalins, R., Kramarz, E., ... Brunner, R. (2013). The association between pathological Internet use and comorbid psychopathology: A systematic review. *Psychopathology*, 46(1), 1-13. <https://doi.org/10.1159/000337971>
- CASP. (2010). *10 questions to help you make sense of qualitative research*. Retrieved from http://www.caspinternational.org/mod_product/uploads/CASP%20Qualitative%20Research%20Checklist%2031.05.13.pdf
- Chang, F.-C., Chiu, C.-H., Lee, C.-M., Chen, P.-H., & Miao, N.-F. (2014). Predictors of the initiation and persistence of Internet addiction among adolescents in Taiwan. *Addictive Behaviors*, 39(10), 1434-1440. <https://doi.org/10.1016/j.addbeh.2014.05.010>
- Charoenwanit, S., & Sumneangsator, T. (2014). Predictors of game addiction in children and adolescents. *Thammasat Review*, 17(1), 150-168.

- Chen, S.-H., Weng, L.-J., Su, Y.-J., Wu, H.-M., & Yang, P.-F. (2003). Development of a Chinese Internet addiction scale and its psychometric study. *Chinese Journal of Psychology*, 36(1), 1-10.
- Chen, Y.-L., Chen, S.-H., & Gau, S. S.-F. (2015). ADHD and autistic traits, family function, parenting style, and social adjustment for Internet addiction among children and adolescents in Taiwan: A longitudinal study. *Research in Developmental Disabilities*, 39, 20-31. <https://doi.org/10.1016/j.ridd.2014.12.025>
- Choi, H. J., & Yoo, J. H. (2015). A study on the relationship between self-esteem, social support, smartphone dependency, internet game dependency of college students. *Journal of East-West Nursing Research*, 21(1), 78-84. <https://doi.org/10.14370/jewnr.2015.21.1.78>
- Choo, H., Sim, T., Liao, A. K. F., Gentile, D. A., & Khoo, A. (2015). Parental influences on pathological symptoms of video-gaming among children and adolescents: A prospective study. *Journal of Child and Family Studies*, 24(5), 1429-1441. <https://doi.org/10.1007/s10826-014-9949-9>
- Dhir, A., Chen, S., & Nieminen, M. (2015). Predicting adolescent Internet addiction: The roles of demographics, technology accessibility, unwillingness to communicate and sought Internet gratifications. *Computers in Human Behavior*, 51, 24-33. <https://doi.org/10.1016/j.chb.2015.04.056>
- Ding, Q., Li, D., Zhou, Y., Dong, H., & Luo, J. (2017). Perceived parental monitoring and adolescent Internet addiction: A moderated mediation model. *Addictive Behaviors*, 74, 48-54. <https://doi.org/10.1016/j.addbeh.2017.05.033>
- Dong, G., Wang, J., Yang, X., & Zhou, H. (2013). Risk personality traits of Internet addiction: A longitudinal study of Internet-addicted Chinese university students. *Asia-Pacific Psychiatry*, 5(4), 316-321. <https://doi.org/10.1111/j.1756-5872.2012.00185.x>
- Frangos, C. C., Frangos, C. C., & Sotiropoulos, I. (2011). Problematic Internet use among Greek university students: An ordinal logistic regression with risk factors of negative psychological beliefs, demographic sites, and online games. *Cyberpsychology, Behavior, and Social Networking*, 14(1-2), 51-58. <https://doi.org/10.1089/cyber.2009.0306>
- Frisch, N. C., & Frisch, L. E. (2006). *Psychiatric mental health nursing*. Canada: Thomson Delmar Learning.
- Grove, S. K., Burns, N., & Gray, J. (2012). *The practice of nursing research: Appraisal, synthesis, and generation of evidence*. Amsterdam: Elsevier Health Sciences.
- Gunawan, J., Aungmyethazan, Y., & Fisher, M. L. (2018). Factors contributing to managerial competence of first-line nurse managers: A systematic review. *International Journal of Nursing Practice*, 24(1), e12611. <https://doi.org/10.1111/in.12611>
- Herodotou, C., Winters, N., & Kambou, M. (2012). A motivationally oriented approach to understanding game appropriation. *International Journal of Human-Computer Interaction*, 28(1), 34-47. <https://doi.org/10.1080/10447318.2011.588108>
- Hu, J., Zhen, S., Yu, C., Zhang, Q., & Zhang, W. (2017). Sensation seeking and online gaming addiction in adolescents: A moderated mediation model of positive affective associations and impulsivity. *Frontiers in Psychology*, 8, 699. <https://doi.org/10.3389/fpsyg.2017.00699>
- Hull, D. C., Williams, G. A., & Griffiths, M. D. (2013). Video game characteristics, happiness and flow as predictors of addiction among video game players: A pilot study. *Journal of Behavioral Addictions*, 2(3), 145-152. <https://doi.org/10.1556/jba.2.2013.005>
- Hyun, G. J., Han, D. H., Lee, Y. S., Kang, K. D., Yoo, S. K., Chung, U.-S., & Renshaw, P. F. (2015). Risk factors associated with online game addiction: A hierarchical model. *Computers in Human Behavior*, 48, 706-713. <https://doi.org/10.1016/j.chb.2015.02.008>
- Jeong, E. J., Lee, H. R., & Yoo, J. H. (2015). Addictive use due to personality: focused on big five personality traits and game addiction. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 9(6), 1985-1999.
- Karaca, S., Karakoc, A., Gurkan, O. C., Onan, N., & Barlas, G. U. (2020). Investigation of the online game addiction level, sociodemographic characteristics and social anxiety as risk factors for online game addiction in middle school students. *Community Mental Health Journal*, 1-9. <https://doi.org/10.1007/s10597-019-00544-z>
- Keyko, K., Cummings, G. G., Yonge, O., & Wong, C. A. (2016). Work engagement in professional nursing practice: A systematic review. *International Journal of Nursing Studies*, 61, 142-164. <https://doi.org/10.1016/j.ijnurstu.2016.05.003>
- Kim, Y.-Y., & Kim, M.-H. (2017). The impact of social factors on excessive online game usage, moderated by online self-identity. *Cluster Computing*, 20(1), 569-582. <https://doi.org/10.1007/s10598-017-0747-1>
- King, D. L., & Delabbro, P. H. (2017). Features of parent-child relationships in adolescents with Internet Gaming Disorder. *International Journal of Mental Health and Addiction*, 15(6), 1270-1283. <https://doi.org/10.1007/s11469-016-0800-6>
- Ko, C.-H., Yen, J.-Y., Chen, C.-C., Chen, S.-H., & Yen, C.-F. (2005). Gender differences and related factors affecting online gaming addiction among Taiwanese adolescents. *The Journal of Nervous and Mental Disease*, 193(4), 273-277. <https://doi.org/10.1097/01.nmd.0000158373.85150.57>
- Kuss, D. J., Van Rooij, A. J., Shorter, G. W., Griffiths, M. D., & van de Mheen, D. (2013). Internet addiction in adolescents: Prevalence and risk factors. *Computers in Human Behavior*, 29(5), 1987-1996.
- Kwak, J. Y., Kim, J. Y., & Yoon, Y. W. (2018). Effect of parental neglect on smartphone addiction in adolescents in South Korea. *Child Abuse & Neglect*, 77, 75-84. <https://doi.org/10.1016/j.chiabu.2017.12.008>
- Laconi, S., Pirès, S., & Chabrol, H. (2017). Internet gaming disorder, motives, game genres and psychopathology. *Computers in Human Behavior*, 75, 652-659. <https://doi.org/10.1016/j.chb.2017.06.012>
- Lee, C., & Kim, O. (2017). Predictors of online game addiction among Korean adolescents. *Addiction Research & Theory*, 25(1), 58-66. <https://doi.org/10.1080/16066359.2016.1198474>
- Lee, H., Kim, J. W., & Choi, T. Y. (2017). Risk factors for smartphone addiction in Korean adolescents: Smartphone use patterns. *Journal of Korean Medical Science*, 32(10), 1674-1679. <https://doi.org/10.3346/jkms.2017.32.10.1674>
- Lemmens, J. S., Valkenburg, P. M., & Peter, J. (2009). Development and validation of a game addiction scale for adolescents. *Media Psychology*, 12(1), 77-95. <https://doi.org/10.1080/15213260802689458>
- Li, C., Dang, J., Zhang, X., Zhang, Q., & Guo, J. (2014). Internet addiction among Chinese adolescents: The effect of parental behavior and self-control. *Computers in Human Behavior*, 41, 1-7. <https://doi.org/10.1016/j.chb.2014.09.001>
- Lim, Y., & Nam, S.-J. (2018). Exploring factors related to problematic internet use in childhood and adolescence. *International Journal of Mental Health and Addiction*, 1-13. <https://doi.org/10.1007/s11469-018-9990-9>

- Lin, M.-P., Ko, H.-C., & Wu, J. Y.-W. (2011). Prevalence and psychosocial risk factors associated with Internet addiction in a nationally representative sample of college students in Taiwan. *Cyberpsychology, Behavior, and Social Networking*, 14(12), 741-746. <https://doi.org/10.1089/cyber.2010.0574>
- Mehroof, M., & Griffiths, M. D. (2010). Online gaming addiction: The role of sensation seeking, self-control, neuroticism, aggression, state anxiety, and trait anxiety. *Cyberpsychology, Behavior, and Social Networking*, 13(3), 313-316. <https://doi.org/10.1089/cpb.2009.0229>
- Milani, L., La Torre, G., Fiores, P., Grumi, S., Gentile, D. A., Ferrante, M., & Di Blasio, P. (2018). Internet gaming addiction in adolescence: Risk factors and maladjustment correlates. *International Journal of Mental Health and Addiction*, 16(4), 888-904. <https://doi.org/10.1007/s11469-017-9750-2>
- Moslehpour, M., & Batjargal, U. (2013). Factors influencing internet addiction among adolescents of Malaysia and Mongolia. *Jurnal Administrasi Bisnis*, 9(2).
- Müller, K. W., Janikian, M., Dreier, M., Wölfling, K., Beutel, M. E., Tzavara, C., & Tsitsika, A. (2015). Regular gaming behavior and internet gaming disorder in European adolescents: Results from a cross-national representative survey of prevalence, predictors, and psychopathological correlates. *European Child & Adolescent Psychiatry*, 24(5), 565-574. <https://doi.org/10.1007/s00787-014-0611-2>
- Peeters, M., Koning, I., & van den Eijnden, R. (2016). Predicting Internet gaming disorder symptoms in young adolescents: A one-year follow-up study. *Computers in Human Behavior*, 80, 255-261. <https://doi.org/10.1016/j.chb.2017.11.008>
- Porter, G., Starcevic, V., Berle, D., & Fenech, P. (2010). Recognizing problem video game use. *Australian and New Zealand Journal of Psychiatry*, 44(2), 120-128. <https://doi.org/10.3109/00048670903279812>
- Rehbein, F., Psych, G., Kleimann, M., Mediasci, G., & Mölle, T. (2010). Prevalence and risk factors of video game dependency in adolescence: Results of a German nationwide survey. *Cyberpsychology, Behavior, and Social Networking*, 13(3), 269-277. <https://doi.org/10.1089/cpb.2009.0227>
- Rho, M. J., Jeong, J.-E., Chun, J.-W., Cho, H., Jung, D. J., Choi, I. Y., & Kim, D.-J. (2016). Predictors and patterns of problematic Internet game use using a decision tree model. *Journal of Behavioral Addictions*, 5(3), 500-509. <https://doi.org/10.1556/2006.5.2016.051>
- Samarsin, Z. A., Far, N. S., Yekleh, M., Tahmasebi, S., Varyani, F., Ramezani, V., & Sandi, L. (2013). Relationship between personality traits and internet addiction of students at Kharazmi University. *International Journal of Psychology and Behavioral Research*, 2(1), 10-17.
- Smith, L. J., Gradisar, M., & King, D. L. (2015). Parental influences on adolescent video game play: A study of accessibility, rules, limit setting, monitoring, and cybersafety. *Cyberpsychology, Behavior, and Social Networking*, 18(5), 273-279. <https://doi.org/10.1089/cyber.2014.0611>
- Spilkova, J., Chomynova, P., & Csemy, L. (2017). Predictors of excessive use of social media and excessive online gaming in Czech teenagers. *Journal of Behavioral Addictions*, 6(4), 611-619. <https://doi.org/10.1556/2006.6.2017.064>
- Stavropoulos, V., Kuss, D., Griffiths, M., & Motti-Stefanidi, F. (2016). A longitudinal study of adolescent Internet addiction: The role of conscientiousness and classroom hostility. *Journal of Adolescent Research*, 31(4), 442-473. <https://doi.org/10.1177/0743558415580163>
- Sul, S. (2015). Determinants of internet game addiction and therapeutic role of family leisure participation. *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, 82(1-2), 271-278. <https://doi.org/10.1007/s10847-015-0508-9>
- Sun, Y., Zhao, Y., Jia, S.-Q., & Zheng, D.-Y. (2015, 2015). Understanding the antecedents of mobile game addiction: The roles of perceived visibility, perceived enjoyment and flow. Paper presented at the Pacific Asia Conference on Information Systems (PACIS).
- Tian, Y., Yu, C., Lin, S., Lu, J., Liu, Y., & Zhang, W. (2019). Sensation seeking, deviant peer affiliation, and Internet gaming addiction among Chinese adolescents: The moderating effect of parental knowledge. *Frontiers in Psychology*, 9, 2727. <https://doi.org/10.3389/fpsyg.2018.02727>
- Toker, S., & Batıray, M. H. (2016). Antecedents and consequences of game addiction. *Computers in Human Behavior*, 55, 666-679. <https://doi.org/10.1016/j.chb.2015.10.002>
- Torres-Rodríguez, A., Griffiths, M. D., Carbonell, X., & Oberst, U. (2018). Internet gaming disorder in adolescence: Psychological characteristics of a clinical sample. *Journal of Behavioral Addictions*, 7(3), 707-718. <https://doi.org/10.1556/2006.7.2018.75>
- Tsitsika, A., Janikian, M., Schoenmakers, T. M., Tzavara, E. C., Olafsson, K., Wójcik, S., & Richardson, C. (2014). Internet addictive behavior in adolescence: A cross-sectional study in seven European countries. *Cyberpsychology, Behavior, and Social Networking*, 17(8), 528-535. <https://doi.org/10.1089/cyber.2013.0382>
- Vukosavljevic-Gvozden, T., Filipovic, S., & Opacic, G. (2015). The mediating role of symptoms of psychopathology between irrational beliefs and internet gaming addiction. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 33(4), 387-405. <https://doi.org/10.1007/s10942-015-0218-7>
- Walther, B., Morgenstern, M., & Hanewinkel, R. (2012). Co-occurrence of addictive behaviours: Personality factors related to substance use, gambling and computer gaming. *European Addiction Research*, 18(4), 167-174. <https://doi.org/10.1159/000335662>
- Wu, J. Y. W., Ko, H.-C., Wong, T.-Y., Wu, L.-A., & Oei, T. P. (2016). Positive outcome expectancy mediates the relationship between peer influence and Internet gaming addiction among adolescents in Taiwan. *Cyberpsychology, Behavior, and Social Networking*, 19(1), 49-55. <https://doi.org/10.1089/cyber.2015.0345>
- Wu, X.-S., Zhang, Z.-H., Zhao, F., Wang, W.-J., Li, Y.-F., Bi, L., & Hu, C.-Y. (2016). Prevalence of Internet addiction and its association with social support and other related factors among adolescents in China. *Journal of Adolescence*, 52, 103-111. <https://doi.org/10.1016/j.adolescence.2016.07.012>
- Young, K. S. (1998). Internet addiction: The emergence of a new clinical disorder. *Cyberpsychology & Behavior*, 1(3), 237-244. <https://doi.org/10.1089/cpb.1998.1.237>

Cite this article as: Juthamanee, S., & Gunawan, J. (2021). Factors related to Internet and game addiction among adolescents: A scoping review. *Beitung Nursing Journal*, 7(2), 62-71. <https://doi.org/10.33546/bnj.1192>

The development of Need–Threat Internal Resiliency Theory in COVID-19 crisis utilizing deductive axiomatic approach

Belitung Nursing Journal
Volume 7(2), 72–77
© The Author(s) 2021
<https://doi.org/10.33546/bnj.1300>

Jonaid M. Sadang¹ and Daisy R. Palompon²

Abstract

Resiliency for older people represents the capacity to return to equilibrium when difficulties arise and was found as integral predictor of their health status. This study aims to develop a theory that attempts to explain the older adults' resiliency perspectives during crisis and how it has affected their well-being and quality of life as population group. Deductive theory generation using axiomatic approach was adopted resulting to five axioms that served as basis for the generation of three propositions such as: (1) An older person's health needs have tendencies to develop into a health threat, (2) when the threat is perceived, older persons developed a sense of internal control and adaptation to the changes it creates known as internal resiliency, and (3) internal resiliency can influence the quality of life in old age. The evolved theory suggests that in times of crisis (e.g., COVID-19 pandemic), health needs develop into a health threat that compels older persons to develop internal resiliency in order to preserve their integrity, wellbeing and quality of life. This study widens the nursing perspectives in addressing older persons' resiliency by the unique condition at which older clients are placed affecting both the pathological nature of the illness as well as the preventive interventions which the society is forced to implement.

Keywords

COVID-19; need-threat; internal resiliency; older adults; deductive axiomatic approach; nursing

Months have passed since the declaration of Coronavirus Disease 2019 (COVID-19) as pandemic health emergency by the World Health Organization (WHO) (D'Cruz & Banerjee, 2020; Sands et al., 2020), however the threat and impact of this virus still continues most especially among developing countries with unsophisticated healthcare system, including The Philippines. This crisis has created abrupt changes and difficulties in the daily activities and survival between populations particularly those marginalized groups, including older adults (Sands et al., 2020). The economic insecurities of most Filipino older adults increases their risk of inability to access both healthcare and other essential needs (Buenaventura et al., 2020; Lekamwasam & Lekamwasam, 2020). This pandemic crisis has created a unique threat on the context of older adults' life resulting to increased uncertainty, fears

related to contagion, illness and death, new stressors and reduces access to protective factors (Ferreira et al., 2020).

Socialization is vital to promote successful ageing and well-being among older adults (Van Tilburg et al., 2020), however this was challenged with the implementation of social distancing and other health protocols in most areas to prevent the spread of this illness among communities in the absence of effective therapeutic management (Buenaventura et al., 2020). Most older adults were usually isolated in their respective residences resulting to minimal contact with their families and friends (Buenaventura et al., 2020). This increases the vulnerability of both physical and psychosocial burden among this population group (Parlapani et al., 2020). In effect, older adults have experienced depressive symptoms, loneliness, stress, anxiety, fear, decline physical abilities, cognitive problems,

¹ College of Health Sciences, Mindanao State University, Marawi City, 9700, Philippines

² College of Nursing, Cebu Normal University, Cebu City, 6000, Philippines

Corresponding author:

Asst. Prof. Jonaid M. Sadang, RN, RM, LPT, MAN, PhD h.c.

0853, Cabilangan, Marawi City, 9700, Philippines

Mobile number: +639-123-795-594

Email: jonaidasadang@yahoo.com | jonaid.sadang@msu-main.edu.ph

Article info:

Received: 9 January 2021

Revised: 4 February 2021

Accepted: 22 February 2021

This is an **Open Access** article distributed under the terms of the **Creative Commons Attribution-NonCommercial 4.0 International License** which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4373 | P-ISSN: 2528-181X

and disruption of sleeping habits during this pandemic time (D'Cruz & Banerjee, 2020).

Social and demographic factors were known to be essential aspects affecting resiliency during any crisis as results of exposures to uneven social vulnerabilities (Ferreira et al., 2020). Older adults usually rely on their family members, friends, community groups and volunteers to meet their daily basic needs (Parlapani et al., 2020). Most people during this pandemic relies more on others to sustain their needs amidst the threat this illness has brought, and this results to decreased perspective on ones' resiliency as an individual (Ferreira et al., 2020). Literature has identified the importance of psychological, social support and connectedness as well as health behaviors as integral components of crisis resiliency (Sands et al., 2020). Resiliency is seen as a resource that enables older adults' stable performance when it comes to both internal and external imbalance within their environment (Chen, 2020). Older adults are considered resilient when they do not succumb to adversity, but rather exhibit the capacity for successful adaptation (Fontes & Neri, 2015). However, the presence of threat and the need to sustain their needs in the midst of pandemic crisis have created uncertainty and have affected their internal resiliency to adapt with such environmental circumstances.

In the process of recovering from this crisis, older adults' resilience may lead to different outcome that deserves careful attention (Chen, 2020). Older adults having good resilience tend to achieve better health outcomes resulting to successful aging and longevity (Chen, 2020; Fontes & Neri, 2015). Theories concerning older adults' resiliency and quality of life have long been established, however, in special situation such as pandemic crisis and how it has affected their internal resiliency was not looked into. Therefore, this theoretical paper aims to design a theory that explains the older adults' internal resiliency perspectives during pandemic crisis and how it affects their well-being and quality of life in specific. The study of the older persons' internal resiliency in addressing pandemic crisis such COVID19 provides a global contribution to the health and well-being of this special population who are known to have been greatly affected in this crisis. This provides a more in-depth understanding in the nursing care of older persons in this crisis focusing on their socio-psychological well-being. The nursing perspectives in addressing older persons' resiliency is widened by the unique condition at which older clients are placed affecting both the pathological nature of the illness as well as the preventive interventions which the society is forced to implement.

Methods

Deductive approach of theory development was adopted in the conduct of this theoretical research that explains the occurrence of the phenomenon under consideration. This approach follows the path of logic most closely as its reasoning begins with a theory out of the existing literatures

supporting the phenomenon under consideration and leads to a new hypothesis (Streubert & Carpenter, 2011). This theory development started with coming up with number of axioms on the interplay between the nature of older adults' resiliency and well-being amidst pandemic crisis, COVID-19 based on the literature and studies to understand the said phenomena under investigation, and eventually leads to the analysis and interpretation of propositions supporting the theory on need and threat internal resiliency among older adults.

Results and Discussion

Five (5) axioms were derived out of the literature and studies used and reviewed as basis for generating the three (3) propositions which then served as framework for the formulation of this theory on older adults' need – threat internal resiliency during pandemic crisis as presented on Table 1. Maslow's theory on hierarchy of needs explains that individuals irrespective of their age seeks to satisfy progressively higher human needs of which each of these levels has relevance for age-related resiliency and well-being, including older adults (Thielke et al., 2012). However, the presence of threat and other environmental crisis usually limits their capacity to maintain equilibrium, thus increases their needs for care and support from the people around them (Abdi et al., 2019; D'Cruz & Banerjee, 2020). Disequilibrium exists when individuals are exposed to stressors putting big burden both in their physical and psychosocial aspects as human beings (D'Cruz & Banerjee, 2020), depriving their independence and human needs during this trying situation (Buenaventura et al., 2020). Therefore, human beings have needs that must be met (Axiom 1).

Human health is dependent on internal and external conditions (Axiom 2). It is a dynamic biological mechanism that over time reflects accumulated structural and functional changes in an organism which are genetically-regulated process that is sensitive to environmental influences (Gobbens & Van Assen, 2018; Tomljenović, 2014). Human health is both biological and social beings (Tomljenović, 2014). These two factors serve as important concept in the maintenance of human health, including the quality of life and well-being of older adults (Zeng et al., 2010). Older adults functioning are products of the interplay between their internal and external environments (Tomljenović, 2014). This population group tends to be more sensitive with their physical and social surroundings and more vulnerable than other age groups with the negative effects of environmental degradation on human health and survival (Gobbens & Van Assen, 2018; Zeng et al., 2010). As people age, the presence of various medical conditions which includes multi-morbidity, disability and frailty create special needs, however a responsive environment could reduce the effect of these problems (Gobbens & Van Assen, 2018), resulting to active aging and remaining independent during old age (Schehl & Leukel, 2020; Zeng et al., 2010).

Older adults are categorized as one of the most vulnerable age group during any crisis (Parlapani et al., 2020). It is often attributed with their age-related status including decrease physical state, presence of chronic medical condition and disabilities, decline cognitive abilities and the increased probability of developing psychosocial problems during this times (Parlapani et al., 2020; Wolf et al., 2020). These factors are known to cause uncertainty that often results to various health problems among older adults (Wolf et al., 2020). Due to unexpected nature of most crisis situations such as for example, pandemic health crisis (D'Cruz & Banerjee, 2020), and the higher susceptibility to acquire medical conditions, older adults are often left uncertain affecting how they should perceive, interpret as well as respond to such situation on a cognitive, emotional and behavioral level (Parlapani et al., 2020; Wolf et al., 2020).

Uncertainty of what is going to happen next often leads to worry, anxiety and even inability to function as individuals affecting ones' capacity as human being (Grube & Nitschke, 2013). It disrupts ones' ability to prevent or mitigate the stressors negative impact (Nuevo et al., 2009). This often leads to anxiety which refers to ones' persistent, strong and irrational fear of being exposed to certain situation such as during pandemic health crisis (Parlapani et al., 2020), and is prevalent among older adults than younger people (Nuevo et al., 2009). COVID-19, for example, has induced numbers of psychological symptoms including fear and anxiety among this population group due to illness uncertainty and the significant risk or threat it poses among this age group (D'Cruz & Banerjee, 2020). In fact, recent literature has revealed the prevalence of older adults' anxiety and fear has increased throughout this pandemic crisis (Buenaventura et al., 2020; Parlapani et al., 2020). Hence, crisis and the presence of threat create uncertainty (Axiom 3).

Health is a multidimensional aspect comprising physical, biological, psychological, economic and social factors of an individual (Pereira et al., 2015). It is an essential major component of quality of life (QLF) especially among older adults (Pereira et al., 2015; Van Leeuwen et al., 2019). Although, QLF is subjective in nature, it always depends on individuals' internal and external environments and perceptions (Pereira et al., 2015). Individuals with meaningful interpretations of life, including the absence of diseases, threat and frailty (Pereira et al., 2015), tend to have better well-being most especially during later life; the old age (Chui, 2018). In times of crisis when older adult's experiences health needs, they feel threatened because there is a need to preserve or establish one's internal resiliency so that the older person could go back to the normal self or stand up from falling down. As such, an older person's health needs have tendencies to develop into a health threat (Proposition 1).

Human beings have the capacity to cope or adjust (Axiom 4). Each of us normally experiences crisis and stress at a different level on a daily basis of our lives due to the various changes within and outside of our environment

(Buenaventura et al., 2020; Galiana et al., 2020). These changes often result to alterations of one's stability which greatly affects individual's well-being and quality of life, including older adults when adaptation or coping strategies is not enough. Coping is defined as individuals' efforts which aim to manage certain specific demands when one's resources are exceeded (Galiana et al., 2020). Individuals have their unique way of coping that helps them compensate or alleviate from stressful circumstances however this might be different for older persons as stressors also change with age (Ribeiro et al., 2017).

In difficult situation, such as pandemic crisis, older adults' health may worsen and even exacerbate leading to life-threatening problems as risk of complications grows. The vulnerabilities and specific needs in older age is becoming a serious challenge for survival and well-being. This problem may result to inability in accessing and sustaining the care they need during these times. As results, health need becomes a health threat and this threatens the older person, which is why a certain level of internal resiliency is developed by the older person. Thus, when the threat is perceived, older persons developed a sense of internal control and adaptation to the changes it creates known as internal resiliency (Proposition 2).

Well-being which includes the experience of life satisfaction, emotions, and the sense of purpose and meaning of life is closely linked with older adults' health (Parlapani et al., 2020; Steptoe et al., 2015). Literature indicates that older adults' quality of life is strongly affected by one's state of health (Steptoe et al., 2015). Older person's well-being has always been considered as essential indicator of successful adaptation during old age (Cho et al., 2011). In fact, studies suggest the state of well-being in old age may even be protective factor of health, reducing the possibility of developing chronic medical problems as well as promotes longevity and successful aging (Steptoe et al., 2015). Hence, health is a requisite to quality of life (Axiom 5). Successful aging does not merely rely only on clinical health status, but also on psychological and social resources of an individual most especially in times of crisis (Galiana et al., 2020). The importance of ones' perceptions of health rather than the sole count of existing threats has been proven by literature as significant determinants of older adults' quality of life and well-being. Hence, internal resiliency can influence the quality of life in old age (Proposition 3).

Need – Threat Internal Resiliency Theory

The effect of crisis, for example, COVID-19 pandemic (Lekamwasam & Lekamwasam, 2020) varies differently between population and the aftereffect may be more pronounced among vulnerable groups, including older adults (Gayer et al., 2020; Mukhtar, 2020). Older adults' population is considered marginalized for various reasons which includes socio-demographic aspects such as age and living condition, the presence of chronic medical condition and co-morbidities as well as declined physical and immune function to fight against stressors

(Lekamwasam & Lekamwasam, 2020), including emerging infections (Fontes et al., 2020). Due to the serious public health concern it poses among this group, older adults are often isolated and restricted from community (Gayer et al., 2020; Mukhtar, 2020). However, despite that social distancing and isolation could save lives of older people, this also increases their risk for some health issues, including loneliness, anxiety and other psychosocial problems due to social constraints resulting to ones'

inability to sustain internal resiliency in times of crisis (Fontes et al., 2020; Vahia et al., 2020). As results, older adults tend to experience lesser opportunities to be satisfied with their living and or experience happiness, resulting to poor quality of life and well-being (Parlapani et al., 2020). Recent studies have also noted reduced quality of life following social isolation among older people during crisis due to these preventive practices (Mukhtar, 2020; Vahia et al., 2020).

Table 1 Propositional structures from axiomatic extractions

Axioms	Propositions	Theory
Axiom 1. Human beings have needs that must be met.	Proposition 1. An older person's health needs have tendencies to develop into a health threat (Axioms 1, 2 and 3).	In times of crisis, health needs develop into a health threat that compels older persons to develop internal resiliency in order to preserve their integrity, wellbeing and quality of life (Need – Threat Internal Resiliency Theory).
Axiom 2. Human health is dependent on internal and external conditions.		
Axiom 3. Crisis and the presence of threat create uncertainty.	Proposition 2. When the threat is perceived, older persons developed a sense of internal control and adaptation to the changes it creates known as internal resiliency (Axioms 3 and 4).	
Axiom 4. Human beings have the capacity to cope or adjust.		
Axiom 5. Health is a requisite to quality of life.	Proposition 3. Internal resiliency can influence the quality of life in old age (Axiom 4 and 5).	



Figure 1 Schematic diagram of the Need – Threat Internal Resiliency Theory

Older adults have special needs that must be met during any crisis, these include but not limited to nutrition, physical activity, health care, communication, and socialization (Vahia et al., 2020). Positive social connections and relationships are fundamental for older adults' well-being as social beings, and the loss of these connections could have profound effects both with physical and mental health of these individuals (Gayer et al., 2020). In addition, the restricted contact with people around them has resulted to loss of financial and social support of which is significant for older people in their daily living (Bidzan-Bluma et al., 2020). As such, in order to respond to changing environmental conditions, the presence of these known threats during any crisis (e.g. pandemic crisis) and the need to sustain their individual needs as human beings for survival increases their internal resilience as human beings for adaptation and survival. Therefore, this theory assumes that in times of crisis, health needs develop into a health threat that compels older persons to develop internal resiliency in order to preserve their integrity, wellbeing and quality of life

(Need – Threat Internal Resiliency Theory) as illustrated on Figure 1.

Conclusion

Internal resiliency plays an important role among older people during crisis as threat and needs coexist during this unanticipated and dynamic situation. As such, when doing crisis planning and implementing intervention as well as preventive measures to curb the problem, older adult needs should be taken into careful consideration as these individuals may require more special attention and support compare with other population group. Hence, the outcome of this study has big implications for public health policy as well as in developing and implementing health services concerning older person during any disaster or pandemic crisis. The theory further provides a wider perspectives on how nurses takes care of older persons to develop resiliency in times of pandemic such as COVID19. Moreover, further studies must be conducted to validate the three proposition of this theory supporting its assumption between the relationship of health needs and threat as strong force that drives older adults' development of internal resiliency in times of crisis.

Declaration of Conflicting Interest

The authors declare no conflict of interest in this study

Funding

This research did not obtain any research funding from any agency.

Acknowledgment

The authors would like to acknowledge the support of their respective Universities, Mindanao State University – Marawi and Cebu Normal University.

Authors' Contribution

JMS contributed to conceptualization, design, analysis and the rest of the content of the article. DRP contributed to conceptualization and analysis of this study. All authors agreed with the final version of the article.

Authors' Biographies

Dr. Jonaid M. Sedang, RN, RM, LPT, MAN is an Assistant Professor IV & designated as College Secretary of the College of Health Sciences, Mindanao State University, Marawi, Philippines.

Dr. Daisy R. Palompon, RN, MAN, DScN is a Professor 6 & designated as Vice President for Academic Affairs of Cebu Normal University, Cebu City, Philippines.

References

- Abdi, S., Spann, A., Borilovic, J., de Witte, L., & Hawley, M. (2019). Understanding the care and support needs of older people: A scoping review and categorisation using the WHO international classification of functioning, disability and health framework (ICF). *BMC Geriatrics*, 19(1), 1-15. <https://doi.org/10.1186/s12877-019-1189-9>
- Bidzan-Bluma, I., Bidzan, M., Jurek, P., Bidzan, L., Knietsch, J., Stueck, M., & Bidzan, M. (2020). A Polish and German population study of quality of life, well-being, and life satisfaction in older adults during the COVID-19 pandemic. *Frontiers in Psychiatry*, 11, 585813. <https://doi.org/10.3389/fpsyt.2020.585813>
- Buenaventura, R. D., Ho, J. B., & Lapid, M. I. (2020). COVID-19 and mental health of older adults in the Philippines: A perspective from a developing country. *International Psychogeriatrics*, 32(10), 1129-1133. <https://doi.org/10.1017/S1041610220000757>
- Chen, L.-K. (2020). Older adults and COVID-19 pandemic: Resilience matters. *Archives of Gerontology and Geriatrics*, 89, 104124. <https://doi.org/10.1016/j.archger.2020.104124>
- Cho, J., Martin, P., Margrett, J., MacDonald, M., & Poon, L. W. (2011). The relationship between physical health and psychological well-being among oldest-old adults. *Journal of Aging Research*, 2011. <https://doi.org/10.4061/2011/605041>
- Chui, R. C.-F. (2018). The role of meaning in life for the quality of life of community-dwelling Chinese elders with low socioeconomic status. *Gerontology and Geriatric Medicine*, 4, 2333721416774147. <https://doi.org/10.1177/2333721416774147>
- D'Cruz, M., & Banerjee, D. (2020). 'An invisible human rights crisis': The marginalization of older adults during the COVID-19 pandemic—An advocacy review. *Psychiatry Research*, 113369. <https://doi.org/10.1016/j.psychres.2020.113369>
- Ferreira, R. J., Butell, F., & Cannon, C. (2020). COVID-19: Immediate predictors of individual resilience. *Sustainability*, 12(16), 6495. <https://doi.org/10.3390/su12166495>
- Fontes, A. P., & Neri, A. L. (2015). Resilience in aging: Literature review. *Ciencia & Saude Coletiva*, 20, 1475-1495. <https://doi.org/10.1590/1413-81232015205.00502014>
- Fontes, W. H. d. A., Gonçalves Júnior, J., de Vasconcelos, C. A. C., da Silva, C. G. L., & Gadelha, M. S. V. (2020). Impacts of the SARS-CoV-2 pandemic on the mental health of the elderly. *Frontiers in Psychiatry*, 11, 841. <https://doi.org/10.3389/fpsyt.2020.00841>
- Galiana, L., Tomás, J. M., Fernández, I., & Oliver, A. (2020). Predicting well-being among the elderly: The role of coping strategies. *Frontiers in Psychology*, 11, 616. <https://doi.org/10.3389/fpsyg.2020.00616>
- Gayer, C., Anderson, R. L., El Zerbi, C., Strang, L., Hall, V. M., Knowles, G., ... Das-Munshi, J. (2020). Impacts of social

isolation among disadvantaged and vulnerable groups during public health crises. Retrieved from <https://www.careknowledge.com/media/47410/3563-social-isolation-2-cs-v3.pdf>

- Gobbens, R. J. J., & van Assen, M. A. L. M. (2018). Associations of environmental factors with quality of life in older adults. *The Gerontologist*, 58(1), 101-110. <https://doi.org/10.1093/geronl/gnx051>
- Grupe, D. W., & Nitschke, J. B. (2013). Uncertainty and anticipation in anxiety: An integrated neurobiological and psychological perspective. *Nature Reviews Neuroscience*, 14(7), 488-501. <https://doi.org/10.1038/nrn3524>
- Lekamwasam, R., & Lekamwasam, S. (2020). Effects of COVID-19 pandemic on health and wellbeing of older people: A comprehensive review. *Annals of Geriatric Medicine and Research*, 24(3), 166-172. <https://doi.org/10.4235/agmr.20.0027>
- Mukhtar, S. (2020). Psychological impact of COVID-19 on older adults. *Current Medicine Research and Practice*, 10(4), 201-202. <https://doi.org/10.1016/j.cmrp.2020.07.016>
- Nuevo, R., Wetherell, J. L., Montorio, I., Ruiz, M. A., & Cabrera, I. (2009). Knowledge about aging and worry in older adults: Testing the mediating role of intolerance of uncertainty. *Aging and Mental Health*, 13(1), 135-141. <https://doi.org/10.1080/13607860802591088>
- Parlapani, E., Holvea, V., Nikopoulou, V. A., Sereslis, K., Athanasidou, M., Godosidis, A., ... Diakogiannis, I. (2020). Intolerance of uncertainty and loneliness in older adults during the COVID-19 pandemic. *Frontiers in Psychiatry*, 11, 842. <https://doi.org/10.3389/fpsyt.2020.00842>
- Pereira, D. S., Nogueira, J. A. D., & Silva, C. A. B. d. (2015). Quality of life and the health status of elderly persons: a population-based study in the central sertão of Ceará. *Revista Brasileira de Geriatria e Gerontologia*, 18(4), 893-908. <https://doi.org/10.1590/1809-9623.2015.14123>
- Ribeiro, M. d. S., Borges, M. d. S., Araújo, T. C. C. F. d., & Souza, M. C. d. S. (2017). Coping strategies used by the elderly regarding aging and death: An integrative review. *Revista Brasileira de Geriatria e Gerontologia*, 20(6), 869-877. <https://doi.org/10.1590/1981-22562017020.170083>
- Sends, L. P., Albert, S. M., & Sutor, J. J. (2020). Understanding and addressing older adults' needs during COVID-19. *Innovation in Aging*, 4(3), igaa019. <https://doi.org/10.1093/geronl/igaa019>
- Schehl, B., & Laukel, J. (2020). Associations between individual factors, environmental factors, and outdoor independence in older adults. *European Journal of Ageing*, 17, 291-298. <https://doi.org/10.1007/s10433-020-00553-y>
- Steptoe, A., Deaton, A., & Stone, A. A. (2015). Psychological wellbeing, health and ageing. *Lancet*, 385(9968), 640. [https://doi.org/10.1016/S0140-6736\(15\)01489-0](https://doi.org/10.1016/S0140-6736(15)01489-0)
- Streubert, H. J., & Carpenter, D. R. (2011). *Qualitative research in nursing: Advancing the humanistic imperative* (5th ed.). Philadelphia: Lippincott Williams & Wilkins.
- Thielke, S., Hamiss, M., Thompson, H., Patel, S., Demiris, G., & Johnson, K. (2012). Maslow's hierarchy of human needs and the adoption of health-related technologies for older adults. *Ageing International*, 37(4), 470-488. <https://doi.org/10.1007/s12126-011-9121-4>
- Tomljenović, A. (2014). Effects of internal and external environment on health and well-being: From cell to society. *Collegium antropologicum*, 38(1), 367-372.
- Vahia, I. V., Jeste, D. V., & Reynolds, C. F. (2020). Older adults and the mental health effects of COVID-19. *JAMA*, 324(22), 2253-2254. <https://doi.org/10.1001/jama.2020.21753>

- Van Leeuwen, K. M., Van Loon, M. S., Van Nies, F. A., Bosmans, J. E., De Vet, H. C. W., Ket, J. C. F., . . . Ostelo, R. W. J. G. (2019). What does quality of life mean to older adults? A thematic synthesis. *PloS One*, 14(3), e0213263. <https://doi.org/10.1371/journal.pone.0213263>
- Van Tilburg, T. G., Steinmetz, S., Stolte, E., van der Roest, H., & de Vries, D. H. (2020). Loneliness and mental health during the COVID-19 pandemic: A study among Dutch older adults. *The Journals of Gerontology: Series B*, 1-7. <https://doi.org/10.1093/geronb/gbaa111>
- Wolf, M. S., Serper, M., Opsasnick, L., O'Connor, R. M., Curtis, L., Benavente, J. Y., . . . Zhang, P. (2020). Awareness, attitudes, and actions related to COVID-19 among adults with chronic conditions at the onset of the US outbreak: A cross-sectional survey. *Annals of Internal Medicine*, 173(2), 100-109. <https://doi.org/10.7326/M20-1239>
- Zeng, Y., Gu, D., Purser, J., Hoenig, H., & Christakis, N. (2010). Associations of environmental factors with elderly health and mortality in China. *American Journal of Public Health*, 100(2), 298-305. <https://doi.org/10.2105/AJPH.2008.154971>

Cite this article as: Sadang, J. M., & Palompon, D. R. (2021). The development of Need–Threat Internal Resiliency Theory in COVID-19 crisis utilizing deductive axiomatic approach. *Baitung Nursing Journal*, 7(2), 72-77. <https://doi.org/10.33546/bnj.1300>

A Proposed Theory of Symptom Cluster Management

Belitung Nursing Journal
Volume 7(2), 78-87
© The Author(s) 2021
<https://doi.org/10.33548/bnj.1359>

Jerick B. Tabudlo*

Abstract

Background: Symptom cluster management is in its early stages in many chronic and debilitating illnesses. The development of a proposed theory should be an initial step in advancing this area of interest.

Objective: This article presents the development of a Proposed Theory of Symptom Cluster Management.

Methods: The concept analysis, statement synthesis, and theory synthesis by Walker and Avant were used in the development of this proposed theory. A search from July to September 2020 for published empirical and theoretical articles was conducted in scientific databases, expanded on the web, and secondary references from identified articles.

Results: The Proposed Theory of Symptom Cluster Management is both a descriptive and explanatory theory. The defining characteristics of symptom cluster management include the basic and effectiveness components. Antecedents for symptom cluster management include socio-demographic characteristics, symptom cluster characteristics, individual clinical characteristics, individual illness factors, and situational factors or symptom experience. The consequences are clustered as personal-related, health-related, social-related outcomes, and existential outcomes. Measurement tools for the antecedents and outcomes in symptom cluster management and the analytical and statistical strategies were considered. Relational statements were also identified. Theoretical assertions were advanced.

Conclusion: The Proposed Theory of Symptom Cluster Management may provide a holistic approach because it integrates both the symptom cluster and management strategies. The concepts, statements including the complete representation of the proposed theory identified in this article, may provide cues to policymakers and clinical researchers towards the development of tailored interventions and programs.

Keywords

symptom cluster; management; strategies; theory; nursing

In nursing, symptom, along with the sufferings arising from it, had been a significant consideration for early nursing theorists such as Florence Nightingale (Nightingale, 1946). Symptom assessment and management are considered a hallmark of nursing practice (Corwin et al., 2014). Generally, the symptom is a result of perceptions of an abnormal multidimensional state (Wilson & Cleary, 1995) of the individual experiencing it. It is subjective in nature that often affects the bio-psychosocial functioning, sensations, and cognition (Humphreys et al., 2014). The definition of symptom suggests that the emotional, cognitive dimensions (Kilbourne et al., 2001) and the

interpretation of symptom are part of the symptom experience. In addition, the symptom may also exist concurrently with other symptoms known as symptom clusters.

In the development of a framework for symptom cluster management, the concept of symptom cluster should be taken into context. Symptoms have research and policy implications (Rutledge & McGuire, 2004) because often it what brings a patient to the health care system and an indicator of a developing illness (Humphreys et al., 2014). A symptom cluster offers an innovative way to assess and manage symptoms (Kim et al., 2005), and the occurrence

University of the Philippines Manila, College of Nursing, Philippines

Corresponding author:

Jerick B. Tabudlo, MA, RN

University of the Philippines Manila, College of Nursing
Pedro Gil St. Ermita, Manila, 1000 Metro Manila, Philippines
Email: jtabudlo@up.edu.ph

Article Info:

Received: 11 February 2021

Revised: 11 March 2021

Accepted: 13 April 2021

This is an **Open Access** article distributed under the terms of the **Creative Commons Attribution-NonCommercial 4.0 International License** which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-191X

of symptom clusters may direct the choice of management strategies. The purpose of this article is to present a proposed theory of symptom cluster management for chronic and debilitating illnesses.

There are a few conceptual models and theories that capture the idea of a symptom cluster or multiplicity of symptoms. These are the Theory of Symptom Management (Humphreys et al., 2014), Symptom Experience (Armstrong, 2003), the Theory of Unpleasant Symptoms (Lenz et al., 1997), and the Symptom Experience in Time (Henly et al., 2003). Some of the identified gaps in the current models are the inclusion of underlying mechanisms (Humphreys et al., 2014; Miskowski et al., 2007) and the vital elements in the description of a symptom cluster (Barsevick et al., 2006). Although these models have been successfully applied and tested, they may be short in terms of considering the factors to management strategies specific to symptom clusters. This may result in reductionism instead of a holistic approach. Although concurrent symptoms are frequently reported in clinical practice, the management of symptom clusters has not reflected this reality.

Methods

The proposed theory for symptom cluster management was developed using the concept analysis, statement synthesis, and theory synthesis by Walker and Avant (2004). A search from July to September 2020 for empirical and theoretical articles using the words "symptom" and "symptom cluster" combined with "management" or "strategies" was conducted. Scientific databases such as Scopus, CINAHL, Science Direct, JSTOR, and Ovid were queried for any related articles. The search was also expanded using the web and secondary references from the identified articles. Articles that reflect the keywords and their derivative terms are read in terms of the context of the abstract.

Concept Analysis

In the development of the concept of symptom cluster management, the seven-step approach of concept analysis by Walker and Avant (2004) was utilized. However, because the purpose of this article is to present a theory, the author omitted the step in identifying a model case, a borderline case, and a contrary case. In this regard, the six steps were followed, which include: 1) Selecting a concept; 2) Determining the aims or purposes of analysis; 3) Identifying all the uses of the concept that can be discovered; 4) Determining the defining attributes; 5) Identifying antecedents and consequences and; 6) Defining the empirical referents.

Statement Synthesis

In the statement development, the literary method of statement synthesis was used. The literary method aims to pull together statements from available research. This method of statement synthesis forms its base from

available research and/or empirical evidence. There are two strategies for a statement synthesis: 1) Make the meaning of the concepts included in a statement to a more universal and; 2) Expand the borders to include a broader and variety of situations (Walker & Avant, 2004).

Theory Synthesis

The theory development follows the theory synthesis. It has three steps which include specifying the focal concept/s, reviewing the literature, and constructing an integrated representation (Walker & Avant, 2004). In the initial step, the identified focal concept for the theory is symptom cluster management. The second step involves combining the relational statements to form a logical theory. In the last step, based on the identified concepts and relationships, an integrated representation of the Proposed Theory of Symptom Cluster Management was created. The illustration is provided in Figure 1.

Discussion

The Proposed Theory of Symptom Cluster Management is both a descriptive and explanatory theory in terms of function. In terms of the level of development, this proposed theory is considered a grand theory because the concepts used are abstract and global in perspective. Assumptions that guided this theory include: 1) Symptom clusters are two, three, or multiple symptoms that occur concurrently and; 2) Symptom clusters are symptoms that can be identified clinically and/or statistically. Theoretical assertions include: 1) Situational factors or symptom experience is a moderating variable to a symptom cluster occurrence that serves as a consideration to management strategies; 2) The effectiveness of symptom cluster management lies in considering both the basic and the effectiveness component. To provide a logical sequence in the development of this theory, the concept analysis, statement synthesis, and theory synthesis will be discussed. Concepts are building blocks of a phenomenon, while statements are relationships, associations, or clarification of a given concept/s. A theory is a logical representation of the concepts and statements of a phenomenon. A theory usually presents a new idea or new insight into the area of interest (Walker & Avant, 2004).

Concept Analysis

A symptom cluster, an assumption of this article, is either two, three, or multiple symptoms that occur concurrently. On the other hand, symptom management can be defined as efforts or strategies to eliminate, avert, delay or minimize the distress brought by the symptom experience (Humphreys et al., 2014). Combining these two terms, therefore, symptom cluster management includes strategies and/or efforts to avert, delay or minimize the overall symptom cluster experience. Based on analysis of literature, symptom cluster management has two components: 1) Basic Components and 2) Effectiveness

Component. The former serves as the primary structure of a symptom cluster management strategy, while the latter serves as an indicator for the delivery, performance, or effectiveness of the management strategy.

Basic components

The basic components of symptom cluster management serve as the basic structure for a symptom cluster management strategy. It includes the purpose, type, nature, and composition of the management strategy.

The *purpose of symptom cluster management* refers to the goal or what the management strategy is trying to achieve. It is geared towards the reduction of the frequency, minimizing the severity, relieving the stress (Portenoy et al., 1994), improving holistic outcomes and the quality of life. The *type of symptom cluster management* refers to the intentional or unintentional inputs of the healthcare provider, the nurse, and the patient or significant other. The types include clinical or nursing management, self-care management, and/or cognitive, behavioral, and environmental changes. Clinical/nursing management covers interventions (Brant et al., 2010) such as cognitive-behavioral interventions (Barsevick et al., 2006; Kwekkeboom et al., 2012), medical therapy (Humphreys et al., 2014), and interventions provided solely or in collaboration with the healthcare provider.

Moreover, self-care management may include self-care strategies (Brant et al., 2010; Henly et al., 2003), complementary therapy, relaxation techniques, or any interventions carried out by the patient and family member (Humphreys et al., 2014). Cognitive, behavioral, or environmental change comes as an indirect result of a certain phenomenon (intentional or unintentional effort), for example, adherence to clinician influences (Brant et al., 2010), health-seeking behavior (Brant et al., 2010; Henly et al., 2003) and alteration of the hospital room, home, or work environment (Humphreys et al., 2014).

The *nature and composition of symptom cluster management* refer to the level of evidence or number of management strategies needed. Symptom cluster management may come as tailored (Skelly et al., 2008), targeted, diverse (Humphreys et al., 2014), or multimodal interventions (Miskowski et al., 2004).

Effectiveness components

The effectiveness component cluster refers to the aspects that may influence the delivery, performance, and effectiveness of a symptom cluster management strategy. These may include the desirability, dose, temporal dimension, and bio-behavioral mechanisms of symptom cluster management. It was noted that desirability (Donesky-Cuenca et al., 2009) or preference (Kwekkeboom et al., 2012) of the management strategy influence outcomes. In addition, the dosage of the intervention (Humphreys et al., 2014) and the setting of the intervention (Miskowski et al., 2004), duration (Kwekkeboom et al., 2012) also influence the effectiveness of the symptom cluster management. The bio-behavioral mechanism and the temporal dimension are understood in

relation to symptom cluster management. A symptom cluster may share common biologic mechanisms (Cleeland et al., 2003). Also, the symptom within a cluster may occur in different clusters (Albusoul et al., 2017; Barsevick et al., 2006), thus influencing the choice of symptom cluster management.

Antecedents and Consequences

Antecedents are occurrences or concepts that must take place prior to the occurrence of a certain concept, while the consequences are occurrences or concepts that happen or arise as a result of a given concept (Waker & Avant, 2004).

Antecedents

The antecedent considered for the concept of symptom cluster management is the very occurrence of a symptom cluster. In this regard, symptom clusters should arise before symptom cluster management occurs and is considered. To aid in the understanding of this section, Figure 1 is presented. The identified antecedents for symptom cluster management include socio-demographic characteristics, symptom cluster characteristics, clinical characteristics, individual illness factors, and situational factors or symptom experience.

Socio-demographic characteristics refer to the sociological and demographical characteristics of the individual who develops and may develop symptom clusters. Sociological factors may include socio-economic status (Brant et al., 2010), employment status (Kim et al., 2012), a role, education, sexual preference (Brant et al., 2010), culture (Armstrong, 2003; Brant et al., 2010), and ethnicity (Kwekkeboom et al., 2012). While the demographic factors may include age, gender (Armstrong, 2003; Brant et al., 2010; Kim et al., 2012), marital status (Brant et al., 2010; Kim et al., 2012), and race, significantly associated with symptom cluster membership (Armstrong, 2003; Brant et al., 2010; Devon et al., 2017; Kim et al., 2012).

Clinical Characteristics refer to the current physiological and psychological status or attributes of the individual with symptom cluster. The factors under this concept include the disease type and state (Armstrong, 2003; Brant et al., 2010; Kim et al., 2012), baseline physical performance status, symptom burden (Kim et al., 2012), types of treatments, co-morbid conditions (Brant et al., 2010; Kim et al., 2012) attitude, mental ability, mental illness and developmental stage (Brant et al., 2010).

Individual Illness Factors refer to the previous individual experiences which may influence current symptom cluster experience and management. These may include surgery experience before baseline data (Kim et al., 2012), or past experiences (Brant et al., 2010), health knowledge, values, attitudes, a sense of coherence, self-efficacy, motivation, resiliency, a personal definition of wellness, substance abuse issues (Brant et al., 2010) and genetics (Miskowski et al., 2007).

Situational Factors or Symptom Experience is defined as the simultaneous reaction to include perception,

evaluation, and response to an alteration in one's feeling (Humphreys et al., 2014) that may be brought by the symptom cluster. Constructs in this concept include symptom assessment, symptom meaning (distress, impact, existential meaning), symptom appraisal (Brant et al., 2010), the perception of the symptoms, self-care strategies (Humphreys et al., 2014), response to self-care, symptom appraisal (Brant et al., 2010), and evaluation of the symptoms (Brant et al., 2010; Humphreys et al., 2014).

Consequences

The consequences of symptom cluster management strategies are collectively described as the symptom status outcome in the Theory of Symptom Management (Humphreys et al., 2014). In this paper, consequences or outcomes are clustered as personal-related, health-related, social-related outcomes, and existential outcomes.

The consequences in *personal-related outcomes* may include self-care ability, quality of life, emotion (Brant et al., 2010; Humphreys et al., 2014), adjustment to illness or adaptive behaviors (Brant et al., 2010), functional status, the quality of life (Dodd et al., 2001; Miaskowski et al., 2004) and alteration in mood (Miaskowski et al., 2004). For *health-related outcomes*, these may include better physical, mental functioning (Humphreys et al., 2014), morbidity (Brant et al., 2010; Humphreys et al., 2014), mortality (Brant et al., 2010; Humphreys et al., 2014; Miaskowski et al., 2004), disease progression (Miaskowski et al., 2004), cognitive factors (Brant et al., 2010), function or functional performance (Armstrong, 2003; Brant et al., 2010; Humphreys et al., 2014; Kim et al., 2012; Lenz et al., 1997), and cognition (Brant et al., 2010; Lenz et al., 1997). Concurrent symptoms or symptom clusters have been used as outcomes themselves (Given et al., 2001).

Moreover, in terms of *social-related outcomes*, these may include outcomes that affect functioning, productivity, and health costs (Humphreys et al., 2014). In addition, self-care costs (Brant et al., 2010), finance (Brant et al., 2010; Humphreys et al., 2014), mortality, and healthcare use (Cheville et al., 2011) were identified to be the outcomes of symptom cluster management. Interestingly symptom experience as a consideration to symptom cluster management may also impact existential concepts such as hope, hopelessness, and death thoughts (Hench et al., 2009).

Empirical Referents

Defining empirical referent is the last step of concept analysis. These are measurements to determine the existence of identified concepts in concept analysis. Although there is no established tool to measure the properties of symptom cluster management, the following empirical referents below are valuable components in measuring the basic and effectiveness components of symptom cluster management because symptom cluster management is often measured in terms of the symptom cluster experience and other identified outcomes. This section will discuss the empirical referents for antecedents

and consequences as well as analytical and statistical strategies.

Empirical referents for antecedents

In terms of measurement tools of the antecedents, socio-demographic characteristics can be measured using a demographic survey (Brelend et al., 2015; Kwekkeboom et al., 2012; Uçeyler et al., 2007) either through self-report or medical records (Beddhu et al., 2000). In patients on dialysis, co-morbidity can be measured using the modified Charlson Comorbidity Index (CCI) (Beddhu et al., 2000).

In terms of symptom cluster measurement, the most widely used is the M.D. Anderson Symptom Inventory (MDASI) is used in many studies (Cherwin, 2012) and has been validated in different languages such as Chinese and Filipino versions (Wang et al., 2006; Wang et al., 2004). It can also measure symptom interference using the symptom interference sub-scale (Cleeland et al., 2000). From this questionnaire, symptom concurrence can be measured (Kwekkeboom et al., 2012).

Furthermore, other questionnaires to measure symptom include the Edmonton Symptom Assessment Scale (Cheung et al., 2009), the Memorial Symptom Assessment Scale (MSAS) (Molassiotis et al., 2010), the Symptom Distress Scale (SDS) (Hench et al., 2009), the Functional Assessment of Cancer Therapy–Anemia Scale (FACT-An) (Jarden et al., 2009) and the Medical Research Council Dyspnea Scale (Brelend et al., 2015).

In HIV, symptoms are measured using HIV Symptom Index (HIVSI) (Zuniga et al., 2017), HIV (SSC-HIV) (Holzemer et al., 1999), its revised version, the SSC-HIV (Holzemer et al., 2001), Memorial Symptom Assessment Schedule (Namisango et al., 2015), HIV Symptom Experience Assessment Scale (HIV-SEAS), HIV Symptom Manageability Scale (HIV-SMS) (Vincenzi et al., 2009), and Symptom Assessment Scale-Short Form (MSAS-SF) (Moers et al., 2015). In emphysema, the University of California, San Diego, Shortness of Breath Questionnaire (SOBQ) can be used to measure dyspnea (Park & Larson, 2014). In osteoarthritis, the Western Ontario McMaster University Osteoarthritis Index (WOMACTM)–physical function sub-scale is used to measure functional status (Jenkins & McCoy, 2015).

Empirical referents for consequences

Measures for symptom outcomes to measure the onset of symptom and experience is the PTDIQ (perception, timing, distress, intensity, and quality) (Henly et al., 2003). Symptom severity of lung cancer is measured using the Physical Symptom Experience tool (Gift et al., 2004). In terms of fatigue, the level of distress is measured by the General Fatigue Scale (Schwartz & Meek, 1999), physical fatigue using Lee Fatigue Scale (LFS) (Lee et al., 1991), or the Brief Fatigue Inventory (Mendoza et al., 1999). Sleep disturbance or insomnia is measured using the Pittsburgh Sleep Quality Index (Buysse et al., 1989) and General Sleep Disturbance Scale (GSDD) (Miaskowski & Lee, 1999). Pain can be measured using the Brief Pain Inventory (Daut et al., 1983). Depressive symptoms can be

assessed using the Center for Epidemiological Studies-Depression (CES-D) scale (Carpenter et al., 1998).

Moreover, in a broader perspective, QOL is measured using the Functional Assessment of Cancer Therapy Scale (FACT) (Paice, 2004). HRQOL in patients with kidney disease using the KDQOL-S (Hays et al., 1994) and Short Form Health Survey Instrument Version 2 (SF-36 v2) form (Ware et al., 1994). Adherence may also help in the impact evaluation of an intervention on aspects of both symptom experience and symptom outcomes (Humphreys et al., 2014). Concurrent symptoms themselves have been used as predictors of patient outcomes (Given et al., 2001). In HIV, the Karnofsky Performance Scale is used to determine the level of functioning ability (Namisango et al., 2015). Symptom experience can be measured using the HIV Symptom Experience Assessment Scale (HIV-SEAS) and the HIV Symptom Manageability Scale (HIV-SMS) (Vincenzi et al., 2009).

Analytical and Statistical Strategies

In terms of analytical and statistical strategies, cluster analysis is among the technique that forms homogeneous groups within complex among patients (Hermens et al., 2015). Exploratory factor analysis is another method that successfully clustered symptoms (Lee & Jeon, 2015; Taylor et al., 1998). In addition, symptom clusters were identified using latent class analysis (Dirksen et al., 2016), principal component analysis (Zuniga et al., 2017), principal component analysis with varimax rotation (Amro et al., 2014; Sarna & Brecht, 1997), principal component analysis with oblique rotation (Chen & Tseng, 2006) or the

principal axis factor analysis technique with oblimin rotation (Fan et al., 2007).

Further, the analytical strategy is the agglomerative hierarchical method with linking average to identify the clusters (Walsh & Rybicki, 2006), hierarchical cluster analysis in the exploratory secondary analysis (Bender et al., 2005), hierarchical cluster analysis with squared Euclidean distances using Ward's clustering methods based on symptom occurrence (Namisango et al., 2015), hierarchical cluster analysis using Ward's method applying squared Euclidean Distance (Moers et al., 2015). Multilevel modeling was also used to test for alterations over time in HIV-related symptom clusters (Cook et al., 2011) or secondary analysis from previous data sets (Bender et al., 2005; Cook et al., 2011). In osteoarthritis, hierarchical and k-means cluster analyses were used to determine symptom clusters (Jerkins & McCoy, 2015) and binary exploratory factor analysis with varimax rotation (Bender et al., 2008).

Proposed Theory of Symptom Cluster Management

This section presents the statement and theory development using the literary method of statement synthesis and theory synthesis. Statement synthesis forms its base from available research and/or empirical evidence. Consequently, the theory synthesis outlined by Walker and Avant (2004) consists of three steps: 1) Specifying the focal concept/s; 2) reviewing the literature, and; 3) constructing an integrated representation (Walker & Avant, 2004). The final phase of this article is a presentation of an integrated representation of the theory located in Figure 1.

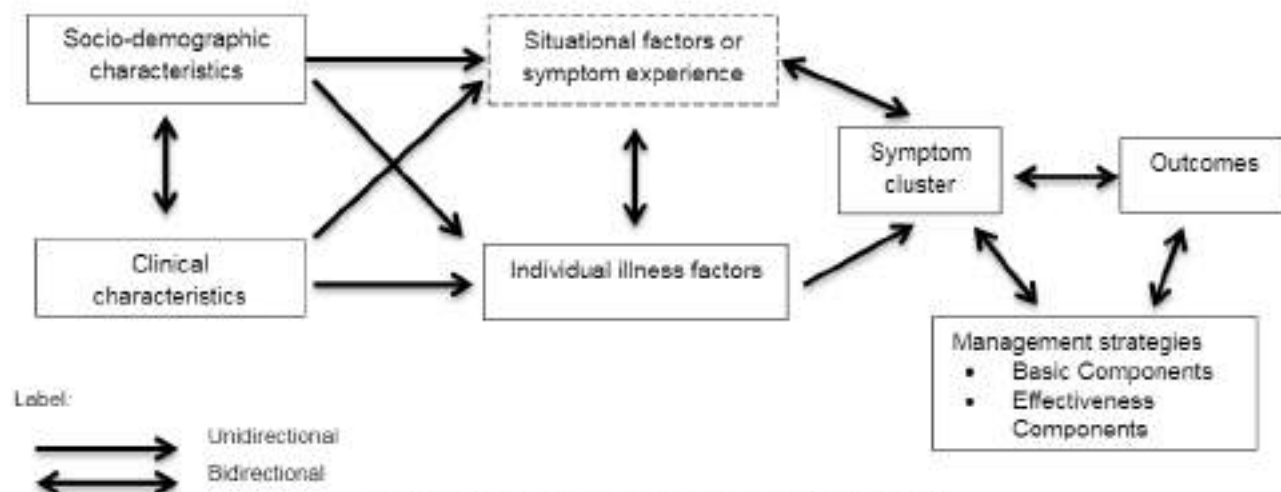


Figure 1 Proposed Theory of Symptom Cluster Management

Statement Synthesis

Relational statements among antecedents vice versa

In a study of fatigue and depression symptom clusters in HIV, the demographic and environmental characteristics show to influence symptom experiences (Voss et al.,

2007). In a study of persons with mild to moderate traumatic brain injury, there is also a variation of symptoms frequency post-injury by age and gender compared to the positive, significant relationship with symptoms and severity and time since injury (Bay & Bergman, 2006). It

was also shown that the frequency of symptoms might influence health-seeking behavior (Humphreys et al., 2014). In addition, in the context of HIV, disease progression reported symptoms increased over time on two of six SSC-HIV symptom clusters (Cook et al., 2011). In heart failure, patients at 75 years and older have significantly less symptom impact compared to the younger age groups, which suggests that age is an important consideration in the assessment of symptom clusters (Jurgens et al., 2009).

Moreover, there are significant levels of depressive symptoms associated with uremic, neuromuscular, and skin clusters in patients on dialysis (Amro et al., 2014). These symptom clusters were initially identified in patients on incident dialysis (Thong et al., 2009). Female patients were likely to have severe symptoms than their male counterparts in the 'energy insufficiency and pain' cluster (Lee & Jeon, 2015). There are also significant associations between a number of demographic and clinical characteristics and Beck Depression Inventory scores (Amro et al., 2014). Interestingly, symptoms clustered differently in a sample of a dual diagnosis HIV and diabetes compared to a sample of previous PLWH patients (Zuniga et al., 2017). Female patients were more likely to experience cluster 1 symptoms in HIV (Namisango et al., 2015).

Relational statements between the symptom cluster management and other concepts vice versa

Management strategies such as changing the environment to improve sleep worked best for parents with low socioeconomic status (Lee & Gay, 2011). Gender-based differences were also found to influence the symptom management strategies (Zimmerman et al., 2011). In addition, the person, health/illness, and environment domains may influence symptom management strategies and ability in heart failure patients (Suwanno et al., 2009). The recognition of a distinct phenotype may also have a role in the modulation of "sickness behavior" in oncology patients and their family caregivers (Illi et al., 2012). Further, the dose and timing of the intervention, frequency and severity of the symptoms, and location of the intervention strategy may also influence the management strategies (Humphreys et al., 2014).

Relational statements between the situational factors or symptom experience and other concepts

Findings from a study suggest a large amount of inter-individual variability of symptom experience in patients on renal dialysis (Killingworth & Van Den Akker, 1996). Woman's symptom experience may also vary by age, reproductive status, genetic risk (Humphreys et al., 2014). In addition, environmental factors such as perceived stress influenced the symptom experience among menopausal women (Nosek et al., 2010). In the same way that there is also inter-individual variability in terms of symptom experience that result in a genetically and biologically determined response in patients with cancer (Kelly et al., 2016).

Relational statements between the consequences and other concepts vice versa

In cancer, the presence of low levels of symptoms in the "all low" group reported had higher Karnofsky Performance Status scores (Miaskowski et al., 2006). It was also hypothesized that advanced disease, poorer functional status, and pain would yield higher scores on the sickness symptom cluster (Chen & Tseng, 2006). In osteoarthritis, there were also significant mean differences in both quality-of-life scores and Western Ontario McMaster University Osteoarthritis Index functional status scores based on the two symptom clusters (Jenkins & McCoy, 2015).

Furthermore, those who reported depression and anxiety had a poorer quality of life (Utne et al., 2010). There is also a bidirectional relationship between adherence and the symptom experience, symptom management, and symptom outcomes (Donesky et al., 2011). A study in patients undergoing hematopoietic stem cell transplantation found significantly lower symptom severity scores over time in the intervention group compared with the control group for four of the five clusters except for the affective symptom cluster (gastrointestinal, cognitive, functional/pain, and mucositis) (Jarden et al., 2009).

In terms of symptom cluster, the score is significantly lower in patients provided with the psycho-educational intervention (PEI) than in those who received the standard care (Chan et al., 2011). In cancer, severity ratings of pain, fatigue, and sleep disturbance were significantly lowered in the intervention group (patient-controlled cognitive-behavioral) compared to the baseline severity prior to the intervention (Kwekkeboom et al., 2012). Demiralp et al. (2010) also reported significant improvements in fatigue and sleep quality among women with early breast cancer in the intervention group (patients assigned to progressive muscle relaxation).

Theory Synthesis

In this section, the author will lay down the integrated representation of the theory using theory synthesis as the method. Following the three steps of theory synthesis mentioned above, the focal concept of this proposed theory is symptom cluster management. In order to characterize the concept of symptom cluster management, the concept analysis method by Walker and Avant (2004) was used. The concept analysis yields the two components of symptom cluster management: 1) The basic component and; 2) the effectiveness component. The antecedents identified for symptom cluster management are considered in relation to the occurrence of the symptom cluster. Thus, the antecedents identified for symptom cluster management are: 1) Socio-demographic characteristics; 2) clinical characteristics; 3) individual illness characteristics, and; 4) situational factors or symptom experience. The consequences of this theory are clustered as personal-related, health-related, social-related, and existential outcomes. They are identified

because they are direct outcomes of symptom cluster management.

Moreover, to identify the related factors and their relationships, the statement synthesis and in-depth analysis formed the bases of relationships. The socio-demographic characteristics and clinical characteristics have bidirectional relationships. Both antecedents have unidirectional relationships with situational factors or symptom experience and individual illness characteristics. Situational factors or symptom experience and individual illness characteristics have bidirectional relationships; both antecedents have unidirectional relationships with symptom clusters. As noted in Figure 1, situational factors or symptom experience serve as moderating variable to a symptom cluster. It means that it affects the overall perception, interpretation, or meaning of a symptom; in the same way that it affects the perception, interpretation, or meaning of symptom clusters. Finally, symptom cluster, the management strategies, and outcomes have each bidirectional relationship. The success of a symptom cluster management strategy lies in consideration of the basic components, which include the purpose, type, nature, and composition, and the effectiveness components that include the desirability, dose, temporal dimension, and bio-behavioral aspect.

Conclusion

The Proposed Theory of Symptom Cluster Management may provide a holistic approach to understanding both the symptom clusters on one hand and management strategies on the other. The defining characteristics of symptom cluster management which include purpose, type, nature, composition, desirability, dose, temporal dimension, and bio-behavioral aspect, may provide cues for policymakers and clinical researchers towards the development of tailored interventions and programs. This proposed theory then allows the integration of symptom clusters and their management strategies in one framework. It should pave the way for further expansion and exploration of this elusive concept of symptom cluster management. Lastly, although scholars are not in unison in terms of symptom cluster definition, the common ground in further understanding symptom cluster management should be highlighted.

Although this proposed theory is recommended to be tested further, nurses can utilize this proposed theory by looking into the antecedents and consequences of an effective symptom cluster management strategy. Nurses taking care of patients with symptom clusters may also be guided in terms of the factors affecting symptom clusters. The outcomes clustered as personal-related, health-related, social-related outcomes, and existential outcomes, may also provide insights to nurses in planning and evaluating nursing interventions to patients who experience symptom clusters.

Further, this proposed theory is both a descriptive and explanatory theory in terms. It functions to explain the

properties of symptom cluster management, and at the same time, its relationships with other concepts. It is also considered a grand theory because the concepts are abstract and global in perspective. This proposed theory should be tested empirically across cultures and diseases. Although there is not a common definition of a symptom cluster at this moment, one assumption is that symptom clusters are symptoms that may be two, three, or multiple symptoms that occur concurrently. In addition, whether they are clinically or statistically related, the need to develop a proposed theory for symptom cluster management should be given greater value at this time as patients with symptom clusters also experience negative health outcomes and poor quality of life.

Declaration of Conflicting Interest

The author has declared no conflict of interest.

Funding

The author of this manuscript receives no financial support from people or organizations in writing this article.

Acknowledgment

The author would like to acknowledge Dr. Lourdes Marie S. Tejero of the University of the Philippines Manila, College of Nursing, for her support, motivation, and valuable insights in writing this article.

Author's Contribution

The author solely conducted this article from conception, design, producing the initial draft, revisions up to the final version of the article. The author agrees to be accountable for all aspects of this work.

Author Biography

Jerick B. Tabudlo, MA, RN is a Doctor of Philosophy in Nursing Student at the College of Nursing, University of the Philippines, Manila, Philippines.

References

- Albuscul, R. M., Berger, A. M., Gay, C. L., Janson, S. L., & Lee, K. A. (2017). Symptom clusters change over time in women receiving adjuvant chemotherapy for breast cancer. *Journal of Pain and Symptom Management*, 53(5), 880-886. <https://doi.org/10.1016/j.jpainsymman.2016.12.332>
- Amro, A., Waldum, B., Dammen, T., Mlaskowski, C., & Os, I. (2014). Symptom clusters in patients on dialysis and their association with quality-of-life outcomes. *Journal of Renal Care*, 40(1), 23-33. <https://doi.org/10.1111/jorc.12051>
- Armstrong, T. S. (2003). Symptoms experience: A concept analysis. *Oncology Nursing Forum*, 30(4), 601-612. <https://doi.org/10.1188/03.ONF.601-606>
- Barsevick, A. M., Whitmer, K., Nail, L. M., Beck, S. L., & Dudley, W. N. (2006). Symptom cluster research: Conceptual, design, measurement, and analysis issues. *Journal of Pain and Symptom Management*, 31(1), 85-95. <https://doi.org/10.1016/j.jpainsymman.2005.05.015>
- Bay, E., & Bergman, K. (2006). Symptom experience and emotional distress after traumatic brain injury. *Care Management Journals*, 7(1), 3. <https://doi.org/10.1891/cmaj.7.1.3>
- Beddhu, S., Bruns, F. J., Saul, M., Seddon, P., & Zeldin, M. L. (2000). A simple comorbidity scale predicts clinical outcomes

- and costs in dialysis patients. *American Journal of Medicine*, 108(8), 609-613. [https://doi.org/10.1016/s0002-9343\(00\)00371-5](https://doi.org/10.1016/s0002-9343(00)00371-5)
- Bender, C. M., Engberg, S. J., Donovan, H. S., Cohen, S. M., Houze, M. P., Rosenzweig, M. Q., ... Sereika, S. M. (2008). Symptom clusters in adults with chronic health problems and cancer as a comorbidity. *Oncology Nursing Forum*, 35(1), E1-E11. <https://doi.org/10.1188/08.ONF.E1-E11>
- Bender, C. M., Ergyn, F. S., Rosenzweig, M. Q., Cohen, S. M., & Sereika, S. M. (2005). Symptom clusters in breast cancer across 3 phases of the disease. *Cancer Nursing*, 28(3), 219-225. <https://doi.org/10.1097/00002820-200505000-00011>
- Brant, J. M., Beck, S., & Miskowski, C. (2010). Building dynamic models and theories to advance the science of symptom management research. *Journal of Advanced Nursing*, 68(1), 228-240. <https://doi.org/10.1111/j.1365-2648.2009.05179.x>
- Brelant, J. Y., Hundt, N. E., Barrera, T. L., Mignogna, J., Petersen, N. J., Stanley, M. A., & Cully, J. A. (2015). Identification of anxiety symptom clusters in Patients with COPD: Implications for assessment and treatment. *International Journal of Behavioral Medicine*, 22(5), 590-598. <https://doi.org/10.1007/s12529-014-9450-2>
- Buyse, D. J., Reynolds III, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research*, 28(2), 193-213. [https://doi.org/10.1016/0165-1781\(89\)90047-4](https://doi.org/10.1016/0165-1781(89)90047-4)
- Carpenter, J., Andrykowski, M., Wilson, J., Hall, L., Kay Rayens, M., Sachs, B., & Cunningham, L. (1998). Psychometrics for two short forms of the Center for Epidemiologic Studies-Depression Scale. *Issues in Mental Health Nursing*, 19(5), 481-494. <https://doi.org/10.1080/016128498248917>
- Chan, C. W. H., Richardson, A., & Richardson, J. (2011). Managing symptoms in patients with advanced lung cancer during radiotherapy: Results of a psychoeducational randomized controlled trial. *Journal of Pain and Symptom Management*, 41(2), 347-357. <https://doi.org/10.1016/j.jpain-symman.2010.04.024>
- Chen, M.-L., & Tseng, H.-C. (2006). Symptom clusters in cancer patients. *Supportive Care in Cancer*, 14(8), 825-830. <https://doi.org/10.1007/s00520-006-0019-8>
- Cherwin, C. H. (2012). Gastrointestinal symptom representation in cancer symptom clusters: A synthesis of the literature. *Oncology Nursing Forum*, 39(2), 157-165. <https://doi.org/10.1188/12.ONF.157-165>
- Cheung, W. Y., Le, L. W., & Zimmermann, C. (2009). Symptom clusters in patients with advanced cancers. *Support Care Cancer*, 17(9), 1223-1230. <https://doi.org/10.1007/s00520-009-0577-7>
- Cheville, A. L., Novotny, P. J., Sloan, J. A., Basford, J. R., Wampler, J. A., Garces, Y. I., ... Yang, P. (2011). The value of a symptom cluster of fatigue, dyspnea, and cough in predicting clinical outcomes in lung cancer survivors. *Journal of Pain and Symptom Management*, 42(2), 213-221. <https://doi.org/10.1016/j.jpainsymman.2010.11.005>
- Cleeland, C. S., Bennett, G. J., Dantzer, R., Dougherty, P. M., Dunn, A. J., Meyers, C. A., ... Wang, X. S. (2003). Are the symptoms of cancer and cancer treatment due to a shared biologic mechanism? A cytokine-immunologic model of cancer symptoms. *Cancer: Interdisciplinary International Journal of the American Cancer Society*, 97(11), 2919-2925. <https://doi.org/10.1002/cncr.11382>
- Cleeland, C. S., Mendoza, T. R., Wang, X. S., Chou, C., Harle, M. T., Morrissey, M., & Engstrom, M. C. (2000). Assessing symptom distress in cancer patients: the M.D. Anderson Symptom Inventory. *Cancer*, 89(7), 1634-1646. [https://doi.org/10.1002/1097-0142\(20001001\)89:7<1634::aid-cncr29>3.0.co;2-v](https://doi.org/10.1002/1097-0142(20001001)89:7<1634::aid-cncr29>3.0.co;2-v)
- Cook, P. F., Sousa, K. H., Matthews, E. E., Meek, P. M., & Kwong, J. (2011). Patterns of change in symptom clusters with HIV disease progression. *Journal of Pain and Symptom Management*, 42(1), 12-23. <https://doi.org/10.1016/j.jpain-symman.2010.09.021>
- Corwin, E. J., Berg, J. A., Armstrong, T. S., Dabbs, A. D., Lee, K. A., Meek, P., & Redeker, N. (2014). Envisioning the future in symptom science. *Nursing Outlook*, 62(5), 348-351. <https://doi.org/10.1016/j.outlook.2014.06.006>
- Daut, R. L., Cleeland, C. S., & Flanery, R. C. (1983). Development of the Wisconsin Brief Pain Questionnaire to assess pain in cancer and other diseases. *Pain*, 17(2), 197-210. [https://doi.org/10.1016/0304-3959\(83\)90143-4](https://doi.org/10.1016/0304-3959(83)90143-4)
- Demiralp, M., Oflaz, F., & Komurcu, S. (2010). Effects of relaxation training on sleep quality and fatigue in patients with breast cancer undergoing adjuvant chemotherapy. *Journal of Clinical Nursing*, 19(7-8), 1073-1083. <https://doi.org/10.1111/j.1365-2702.2009.03037.x>
- DeVon, H. A., Vuckovic, K., Ryan, C. J., Barnason, S., Zerwic, J. J., Pozehl, B., ... Zimmerman, L. (2017). Systematic review of symptom clusters in cardiovascular disease. *European Journal of Cardiovascular Nursing*, 16(1), 6-17. <https://doi.org/10.1177/1474515116642594>
- Dirksen, S. R., Belyea, M. J., Wong, W., & Epstein, D. R. (2016). Transitions in symptom cluster subgroups among men undergoing prostate cancer radiation therapy. *Cancer Nursing*, 39(1), 3-11. <https://doi.org/10.1097/NCC.0000000000000236>
- Dodd, M. J., Miskowski, C., & Paul, S. M. (2001). Symptom clusters and their effect on the functional status of patients with cancer. *Oncology Nursing Forum*, 28(3), 465-470.
- Donesky, D., Janson, S. L., Nguyen, H. Q., Neuhaus, J., Nellands, T. B., & Carmen-Kohlman, V. (2011). Determinants of frequency, duration, and continuity of home walking in patients with COPD. *Geriatric Nursing*, 32(3), 178-187. <https://doi.org/10.1016/j.gerinurse.2011.01.011>
- Donesky-Cuenca, D., Nguyen, H. Q., Paul, S., & Carmen-Kohlman, V. (2009). Yoga therapy decreases dyspnea-related distress and improves functional performance in people with chronic obstructive pulmonary disease: A pilot study. *The Journal of Alternative and Complementary Medicine*, 15(3), 225-234. <https://doi.org/10.1089/acm.2008.0389>
- Fan, G., Filipczak, L., & Chow, E. (2007). Symptom clusters in cancer patients: A review of the literature. *Current Oncology*, 14(5), 173-179. <https://doi.org/10.3747/co.2007.145>
- Gift, A. G., Jablonski, A., Stommel, M., & Given, C. W. (2004). Symptom clusters in elderly patients with lung cancer. *Oncology Nursing Forum*, 31(2), 202-212. <https://doi.org/10.1188/04.ONF.202-212>
- Given, B., Given, C., Azzouz, F., & Stommel, M. (2001). Physical functioning of elderly cancer patients prior to diagnosis and following initial treatment. *Nursing Research*, 50(4), 222-232. <https://doi.org/10.1097/00006199-200107000-00008>
- Hays, R. D., Kalich, J. D., Mapes, D. L., Coons, S. J., & Carter, W. B. (1994). Development of the kidney disease quality of life (KDQOL TM) instrument. *Quality of Life Research*, 3(5), 329-338. <https://doi.org/10.1007/BF00451725>
- Henly, S. J., Kallas, K. D., Klatt, C. M., & Swanson, K. K. (2003). The notion of time in symptom experiences. *Nursing Research*, 52(6), 410-417. <https://doi.org/10.1097/00006199-200311000-00009>

- Henoch, I., Piner, A., & Tishelman, C. (2009). Increasing stringency in symptom cluster research: A methodological exploration of symptom clusters in patients with inoperable lung cancer. *Oncology Nursing Forum*, 36(6), E282-E292. <https://doi.org/10.1188/09.ONF.E283-e292>
- Hermens, D. F., Naismith, S. L., Chitty, K. M., Lee, R. S. C., Tickell, A., Duffy, S. L., ... Lagopoulos, J. (2015). Cluster analysis reveals abnormal hippocampal neurometabolic profiles in young people with mood disorders. *European Neuropsychopharmacology*, 25(6), 836-845. <https://doi.org/10.1016/j.euroneuro.2015.02.009>
- Holzemer, W. L., Henry, S. B., Nokes, K. M., Corless, I. B., Brown, M. A., Powell-Cope, G. M., ... Inciye, J. (1999). Validation of the Sign and Symptom Check-List for persons with HIV disease (SSC-HIV). *Journal of Advanced Nursing*, 30(5), 1041-1049. <https://doi.org/10.1046/j.1365-2648.1999.01204.x>
- Holzemer, W. L., Hudson, A., Kirksey, K. M., Hamilton, M. J., & Bakken, S. (2001). The revised sign and symptom check-list for HIV (SSC-HIVrev). *Journal of the Association of Nurses in AIDS Care*, 12(5), 60-70. [https://doi.org/10.1016/S1055-3290\(06\)60263-X](https://doi.org/10.1016/S1055-3290(06)60263-X)
- Humphreys, J., Janson, S., Donesky, D. A., Dracup, K., Lee, K. A., Puntillo, K., ... Baggott, C. (2014). Theory of symptom management. In M. J. Smith & P. R. Liehr (Eds.), *Middle range theory for nursing* (pp. 141-164). New York: Springer Publishing Company.
- Ill, J., Miaskowski, C., Cooper, B., Levine, J. D., Dunn, L., West, C., ... Baggott, C. (2012). Association between pro- and anti-inflammatory cytokine genes and a symptom cluster of pain, fatigue, sleep disturbance, and depression. *Cytokine*, 58(3), 437-447. <https://doi.org/10.1016/j.cyt.2012.02.015>
- Jarden, M., Nelausen, K., Hovgaard, D., Boesen, E., & Adamsen, L. (2009). The effect of a multimodal intervention on treatment-related symptoms in patients undergoing hematopoietic stem cell transplantation: A randomized controlled trial. *Journal of Pain and Symptom Management*, 38(2), 174-190. <https://doi.org/10.1016/j.painsymman.2008.09.005>
- Jenkins, J. B., & McCoy, T. P. (2015). Symptom clusters, functional status, and quality of life in older adults with osteoarthritis. *Orthopaedic Nursing*, 34(1), 36-42. <https://doi.org/10.1097/NOR.0000000000000112>
- Jurgens, C. Y., Moser, D. K., Armola, R., Carlson, B., Sethares, K., & Riegel, B. (2009). Symptom clusters of heart failure. *Research in Nursing & Health*, 32(5), 551-560. <https://doi.org/10.1002/nur.20343>
- Kelly, D. L., Dickinson, K., Hsiao, C.-P., Lukkahatai, N., Gonzalez-Marrero, V., McCabe, M., & Saligan, L. N. (2016). Biological basis for the clustering of symptoms. *Seminars in Oncology Nursing*, 32(4), 351-360. <https://doi.org/10.1016/j.soncn.2016.08.002>
- Kilbourne, A. M., Justice, A. C., Rabeneck, L., Rodriguez-Barradas, M., & Weissman, S. (2001). General medical and psychiatric comorbidity among HIV-infected veterans in the post-HAART era. *Journal of Clinical Epidemiology*, 54(12), S22-S28. [https://doi.org/10.1016/S0895-4356\(01\)00443-7](https://doi.org/10.1016/S0895-4356(01)00443-7)
- Killingworth, A., & Van Den Akker, O. (1996). The quality of life of renal dialysis patients: trying to find the missing measurement. *International Journal of Nursing Studies*, 33(1), 107-120. [https://doi.org/10.1016/0020-7489\(95\)00040-2](https://doi.org/10.1016/0020-7489(95)00040-2)
- Kim, H.-J., McGuire, D. B., Tulman, L., & Barsevick, A. M. (2005). Symptom clusters: Concept analysis and clinical implications for cancer nursing. *Cancer Nursing*, 28(4), 270-282. <https://doi.org/10.1097/00002820-200507000-00005>
- Kim, H. J., Barsevick, A. M., Beck, S. L., & Dudley, W. (2012). Clinical subgroups of a psychoneurologic symptom cluster in women receiving treatment for breast cancer: A secondary analysis. *Oncology Nursing Forum*, 39(1), E20-30. <https://doi.org/10.1188/12.ONF.E20-e30>
- Kwekkeboom, K. L., Abbott-Anderson, K., Cherwin, C., Roiland, R., Serlin, R. C., & Ward, S. E. (2012). Pilot randomized controlled trial of a patient-controlled cognitive-behavioral intervention for the pain, fatigue, and sleep disturbance symptom cluster in cancer. *Journal of Pain and Symptom Management*, 44(8), 810-822. <https://doi.org/10.1016/j.painsymman.2011.12.281>
- Lee, K. A., & Gay, C. L. (2011). Can modifications to the bedroom environment improve the sleep of new parents? Two randomized controlled trials. *Research in Nursing & Health*, 34(1), 7-19. <https://doi.org/10.1002/nur.20413>
- Lee, K. A., Hicks, G., & Nino-Murcia, G. (1991). Validity and reliability of a scale to assess fatigue. *Psychiatry Research*, 36(3), 291-298. [https://doi.org/10.1016/0165-1781\(91\)90027-M](https://doi.org/10.1016/0165-1781(91)90027-M)
- Lee, S. J., & Jeon, J. (2015). Relationship between symptom clusters and quality of life in patients at stages 2 to 4 chronic kidney disease in Korea. *Applied Nursing Research*, 28(4), e13-e19. <https://doi.org/10.1016/j.apnr.2015.03.004>
- Lenz, E. R., Pugh, L. C., Miligan, R. A., Gift, A., & Suppe, F. (1997). The middle-range theory of unpleasant symptoms: An update. *Advances in Nursing Science*, 19(3), 14-27. <https://doi.org/10.1097/00012272-199703000-00003>
- Mendoza, T. R., Wang, X. S., Cleeland, C. S., Morrissey, M., Johnson, B. A., Wendt, J. K., & Huber, S. L. (1999). The rapid assessment of fatigue severity in cancer patients: Use of the Brief Fatigue Inventory. *Cancer*, 85(5), 1186-1196. [https://doi.org/10.1002/\(SICI\)1097-0142\(19990301\)85:5<1186::AID-CNCR24>3.0.CO;2-N](https://doi.org/10.1002/(SICI)1097-0142(19990301)85:5<1186::AID-CNCR24>3.0.CO;2-N)
- Miaskowski, C., Aouizerat, B. E., Dodd, M., & Cooper, B. (2007). Conceptual issues in symptom clusters research and their implications for quality-of-life assessment in patients with cancer. *Journal of the National Cancer Institute Monographs*(37), 39-46. <https://doi.org/10.1093/jncimonographs/lgm003>
- Miaskowski, C., Cooper, B. A., Paul, S. M., Dodd, M., Lee, K., Aouizerat, B. E., ... Bank, A. (2006). Subgroups of patients with cancer with different symptom experiences and quality-of-life outcomes: A cluster analysis. *Oncology Nursing Forum*, 33(5), E79-E89. <https://doi.org/10.1188/06.ONF.E79-E89>
- Miaskowski, C., Dodd, M., & Lee, K. (2004). Symptom clusters: The new frontier in symptom management research. *JNCI Monographs*, 2004(32), 17-21. <https://doi.org/10.1093/jncimonographs/lgh023>
- Miaskowski, C., & Lee, K. A. (1999). Pain, fatigue, and sleep disturbances in oncology outpatients receiving radiation therapy for bone metastasis: A pilot study. *Journal of Pain and Symptom Management*, 17(5), 320-332. [https://doi.org/10.1016/S0885-3924\(99\)00008-1](https://doi.org/10.1016/S0885-3924(99)00008-1)
- Moens, K., Siegfert, R. J., Taylor, S., Namisango, E., Harding, R., & Impact, E. (2015). Symptom clusters in people living with HIV attending five palliative care facilities in two sub-Saharan African countries: A hierarchical cluster analysis. *PLoS One*, 10(5), e0126554. <https://doi.org/10.1371/journal.pone.0126554>
- Molassiotis, A., Wengström, Y., & Kearney, N. (2010). Symptom cluster patterns during the first year after diagnosis with cancer. *Journal of Pain and Symptom Management*, 39(5), 847-858. <https://doi.org/10.1016/j.painsymman.2009.09.012>

- Namisengo, E., Harding, R., Katabira, E. T., Siegert, R. J., Powell, R. A., Aluhaire, L., . . . Taylor, S. (2015). A novel symptom cluster analysis among ambulatory HIV/AIDS patients in Uganda. *AIDS Care*, 27(8), 954-963. <https://doi.org/10.1080/09540121.2015.1020749>
- Nightingale, F. (1946). *Notes on nursing: What it is, and what it is not*. Cambridge: Cambridge University Press.
- Nosek, M., Kennady, H. P., Beyene, Y., Taylor, D., Gillis, C., & Lee, K. (2010). The effects of perceived stress and attitudes toward menopause and aging on symptoms of menopause. *Journal of Midwifery & Women's Health*, 55(4), 328-334. <https://doi.org/10.1016/j.jmwh.2009.09.005>
- Paice, J. A. (2004). Assessment of symptom clusters in people with cancer. *JNCI Monographs*, 2004(32), 98-102. <https://doi.org/10.1093/jncimonographs/gh009>
- Park, S. K., & Larson, J. L. (2014). Symptom cluster, healthcare use and mortality in patients with severe chronic obstructive pulmonary disease. *Journal of Clinical Nursing*, 23(17-18), 2658-2671. <https://doi.org/10.1111/jocn.12526>
- Portney, R. K., Thaler, H. T., Kornblith, A. B., Lepore, J. M., Friedlander-Klar, H., Kiyasu, E., . . . Norton, L. (1994). The Memorial Symptom Assessment Scale: An instrument for the evaluation of symptom prevalence, characteristics and distress. *European Journal of Cancer*, 30(9), 1326-1336. [https://doi.org/10.1016/0959-8049\(94\)90182-1](https://doi.org/10.1016/0959-8049(94)90182-1)
- Rutledge, D. M., & McGuire, C. (2004). Evidence-based symptom management. In C. H. Yarbro, M. H. Frogge, & M. Goodman (Eds.), *Cancer Symptom Management* (3rd ed., pp. 3-14). Sudbury: Jones & Bartlett.
- Sarna, L., & Brecht, M.-L. (1997). Dimensions of symptom distress in women with advanced lung cancer: A factor analysis. *Heart & Lung*, 26(1), 23-30. [https://doi.org/10.1016/S0147-8563\(97\)90006-8](https://doi.org/10.1016/S0147-8563(97)90006-8)
- Schwartz, A., & Meek, P. (1999). Additional construct validity of the Schwartz Cancer Fatigue Scale. *Journal of Nursing Measurement*, 7(1), 35-45.
- Skelly, A. H., Leeman, J., Carlson, J., Soward, A. C. M., & Burns, D. (2008). Conceptual model of symptom-focused diabetes care for African Americans. *Journal of Nursing Scholarship*, 40(3), 261-267. <https://doi.org/10.1111/j.1547-5069.2008.00236.x>
- Suwanjo, J., Petpichetchian, W., Riegel, B., & Issaramalai, S.-a. (2009). A model predicting health status of patients with heart failure. *Journal of Cardiovascular Nursing*, 24(2), 118-126. <https://doi.org/10.1097/jcn.0b013e318197a75c>
- Taylor, S., Kuch, K., Koch, W. J., Crockett, D. J., & Passey, G. (1998). The structure of posttraumatic stress symptoms. *Journal of Abnormal Psychology*, 107(1), 154-160.
- Thong, M. S. Y., van Dijk, S., Noordzij, M., Boeschoten, E. W., Krediet, R. T., Dekker, F. W., . . . Group, N. S. (2009). Symptom clusters in incident dialysis patients: Associations with clinical variables and quality of life. *Nephrology Dialysis Transplantation*, 24(1), 225-230. <https://doi.org/10.1093/ndt/gfn449>
- Uçeyler, N., Rogausch, J. P., Toyka, K. V., & Sommer, C. (2007). Differential expression of cytokines in painful and painless neuropathies. *Neurology*, 69(1), 42-49. <https://doi.org/10.1212/01.wnl.0000265062.92340.a5>
- Vincenzi, C. B., Moody, K., & Sping, R. (2009). Development and pretesting of a set of symptom assessment tools in HIV: The HIV Symptom Experience Assessment Scale and the HIV Symptom Manageability Scale. *Applied Nursing Research*, 22(3), 204-210. <https://doi.org/10.1016/j.apnr.2007.10.002>
- Voss, J. G., Portillo, C. J., Holzemer, W. L., & Dodd, M. J. (2007). Symptom cluster of fatigue and depression in HIV/AIDS. *Journal of Prevention & Intervention in the Community*, 33(1-2), 19-34. https://doi.org/10.1300/J005v33n01_03
- Walker, L. O., & Avant, K. C. (2004). *Strategies for theory construction in nursing* (4th ed.). Upper Saddle River New Jersey: Pearson/Prentice Hall.
- Walsh, D., & Rytick, L. (2006). Symptom clustering in advanced cancer. *Supportive Care in Cancer*, 14(6), 831-836. <https://doi.org/10.1007/s00520-005-0890-z>
- Wang, X. S., Laudico, A. V., Guo, H., Mendoza, T. R., Matsuda, M. L., Yosico, V. D., . . . Cleland, C. S. (2006). Filipino version of the M. D. Anderson Symptom Inventory: Validation and multisymptom measurement in cancer patients. *Journal of Pain and Symptom Management*, 31(6), 542-552. <https://doi.org/10.1016/j.jpainsymman.2005.11.011>
- Wang, X. S., Wang, Y., Guo, H., Mendoza, T. R., Hao, X. S., & Cleland, C. S. (2004). Chinese version of the M. D. Anderson Symptom Inventory: Validation and application of symptom measurement in cancer patients. *Cancer*, 101(8), 1890-1901. <https://doi.org/10.1002/cncr.20448>
- Ware, J. E., Kosinski, M., & Keller, S. (1994). *SF-36 physical and mental health summary scales: A user's manual*. Boston, MA: Health Assessment Lab. New England Medical Center.
- Wilson, I. B., & Cleary, P. D. (1995). Linking clinical variables with health-related quality of life: A conceptual model of patient outcomes. *JAMA*, 273(1), 59-65. <https://doi.org/10.1001/jama.1995.03520250075037>
- Zimmerman, L., Barnason, S., Hertzog, M., Young, L., Nieveen, J., Schulz, P., & Tu, C. (2011). Gender differences in recovery outcomes after an early recovery symptom management intervention. *Heart & Lung*, 40(5), 429-439. <https://doi.org/10.1016/j.hrtng.2010.07.018>
- Zuniga, J. A., Bose, E., Park, J., Lapiz-Bluhm, M. D., & Garcia, A. A. (2017). Diabetes changes symptoms cluster patterns in persons living with HIV. *Journal of the Association of Nurses in AIDS Care*, 28(6), 888-896. <https://doi.org/10.1016/j.jana.2017.07.004>

Cite this article as: Tabudlo, J. B. (2021). A Proposed Theory of Symptom Cluster Management. *Beihung Nursing Journal*, 7(2), 78-87. <https://doi.org/10.33546/bnj.1359>

Health literacy and health-promoting behaviors among adults at risk for diabetes in a remote Filipino community

Beitung Nursing Journal
Volume 7(2), 88-97
© The Author(s) 2021
<https://doi.org/10.33548/bnj.1298>

Christian Sandor B. Ydirin[✉]

Abstract

Background: Diabetes risk assessment is an essential preboarding tool before implementing health literacy programs to change an adult's health behavior positively. Research has shown an association between health literacy and health behaviors, but there is a dearth of literature that delineates the difference between the health literacy and health behaviors of adults according to their diabetes risks; high risk vs. low risk.

Objective: This study aimed to determine the difference between the health literacy and health behaviors of adults and establish the relationship between the two variables when classified according to their diabetes risks.

Methods: This study utilized a descriptive cross-sectional design with 400 adults in a remote Filipino community in November 2019. Data were gathered using the Health Promoting Lifestyle Profile II (HPLP II) and Health Literacy Survey-Short Form 12 (HLS-SF12) questionnaires. Descriptive statistics, independent *t*-test, and Pearson's *r* were used to analyze the data.

Results: There is a significant difference between the health literacy index scores ($p < .05$); but no significant difference between the health behavior mean scores ($p > .05$) of adults when grouped according to their diabetes risks. Health literacy is significantly ($p < .05$) correlated with health behaviors of adults, with a moderate positive correlation in the high-risk group ($r = .43$), and both weak positive correlation in the low-risk group ($r = .13$) and entire group ($r = .17$).

Conclusion: All adult inclusion efforts in promoting health literacy, with emphasis on the high-risk group, are needed to improve awareness of the degree of diabetes risks. Nurses should take an active role in the assessment of diabetes risks, evaluation of results, and implementation of interventions that could increase health literacy to facilitate the development of healthy behaviors. Stakeholders are urged to advance the availability of evidence-based lifestyle interventions to reduce the growth in new cases of diabetes.

Keywords

adult; health literacy; health behavior; risk assessment; nursing; Philippines

Diabetes risk assessments are essential information that could be utilized in promoting health education among adults at risk for the disease. The impact of diabetes risk factors on health outcomes can be overestimated when ascertaining the disease based on medical diagnoses rather than on risk assessments (Feldman et al., 2017). In health promotion activities, health education is essential, wherein the role of health literacy is indispensable. However, health literacy should not be assessed as an isolated concept but should be evaluated in combination

with health behaviors (Yeh et al., 2018). In this research, Diabetes Mellitus Type 2 (DM2) is a lifestyle-related disease taken into the limelight. The International Diabetes Federation (2014) estimated that there are 3.2 million cases of DM2 in the Philippines with a 5.9% prevalence rate in adults between the ages of 20-79 years, with more than half of the population remained to be undiagnosed. In one of the regional administrative units of the Philippines, Western Visayas has been reported to have one out of five adults having diabetes (Conserva, 2014), with a similar statistic

University of the Philippines Open University, Los Baños, Laguna 4031, Philippines

Corresponding author:

Christian Sandor B. Ydirin, MAN, BSN, RN, CCRN

University of the Philippines Open University, Los Baños, Laguna 4031, Philippines

Email: christiansandor.ydirin@upou.edu.ph

Article Info:

Received: 7 January 2021

Revised: 17 February 2021

Accepted: 1 March 2021

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2526-181X

applicable to the whole nation, wherein one out of five Filipinos either has pre-diabetes or diabetes. On a local municipal unit, there is an annually increasing case of diabetes among adults in President Roxas, Capiz, with a prevalence rate of 1.4% (Pilar, 2018). This number shows those who were only diagnosed with diabetes. Still, nothing is known about those at risk for the disease, leaving the percentage as an underestimation of the true prevalence of undiagnosed diabetes in the municipality. The report enumerated several reasons for the increase in diabetes cases, such as the unhealthy lifestyle of the community, incidental screening of few adults seeking treatment at the rural health unit, and regular services in nearby accessible barangays.

Several studies pointed out the benefits of diabetes risk assessment, with suggested approach including employment of a diabetes risk assessment questionnaire (Lindström et al., 2010; Pippitt et al., 2016), application of screening using a home-based approach (Pastakia et al., 2013) and targeted implementation in racial, ethnic and remotely underserved individuals to improve its advantage (Wilson et al., 2010). Two population studies concluded that people with undiagnosed diabetes considerably underestimate their probability of developing the disease (Adriaanse et al., 2008; Kowall et al., 2017). Relatively, the conduct of diabetes risk assessment is essential to include the entire population, but the economy of its practice is challenged. On a particular note, if significant differences could be determined between the health outcomes of persons with high and low risk for diabetes, practical implications can be derived thereafter. In addition to diabetes risk assessment, the health literacy and health behaviors of adults in remotely located upland barangays are not assessed because of their inaccessibility to the healthcare facility and the large disparity between the health budget and maintenance and operating costs (Pilar, 2018). It is noted that patients seek medical consultation when they are very sick and that low health literacy affects health behaviors, with lifestyle diseases such as diabetes (Gloor, 2014). In the Philippines, it is disturbing to note that despite the country's high reading and writing literacy, it appears that this does not always translate to high health literacy (Agosto et al., 2018; Maduramante et al., 2019).

There is a dearth of literature that presents correlations between health behaviors and health literacy in marginalized groups, more lacking when classified according to their diabetes risk. To the best of the author's knowledge, only one study (Sutherland et al., 2012) have classified diabetes risk and investigated its association with health behaviors, with the exclusion of health literacy in its variables. There is a need for additional studies with a higher hierarchical sampling design that could support the importance of nurse-directed assessment of diabetes risk. Conclusive shreds of evidence that could show significant differences in health behaviors and health literacy between adults with low or high risk for developing diabetes imply that risk assessment is a practical and strategical approach

before implementing health promotion activities, whether on a large scale or a targeted population.

At present, only a few studies are being conducted that classify the adult population according to their diabetes risk (Sutherland et al., 2012) and most lacking or probably none when relationships between their health literacy and health behaviors are further examined. On the contrary, numerous studies have revealed an association between health behaviors and health literacy in different populations (Chahardah-Cherik et al., 2018; Hansen et al., 2015; Kim et al., 2018; Suka et al., 2015; Yeh et al., 2018). These studies focus only on the urban population and adults diagnosed with diabetes or, otherwise, healthy persons. Thus, this study aims to delineate differences between health literacy and health behaviors among adults, when categorized according to their diabetes risk, and establish the relationship between these variables.

Methods

Study Design

A descriptive correlational research design with a cross-sectional approach was utilized in this study. It was carried out in Barangay Vizcaya, President Roxas, Capiz, Philippines, during the whole month of November 2019.

Sample/Participants

A sample from the population of the aforementioned location, with low-income, remotely located, and medically underserved adults were selected. Barangay Vizcaya, with a population of 2,464 and an average household size of 5.37, was chosen as the accessible population. As one of the most populous Barangay compared to the other 22 Barangays of the municipality, it was selected to expect a higher return rate. The sample size was determined using the G*Power 3.1 (Faul et al., 2009) calculator for sample size, with a priori power analysis for Pearson's r correlation for two independent samples; calculated based on the power of 80%, .05 alpha level of significance and the smallest effect size of .1. The largest required sample size was 433. The researcher deliberately allotted a total of 500 randomly selected participants to increase the return rate. From the accessible population, stratified random sampling was employed to systematically choose the sample according to age and sex. Inclusion criteria encompassed those who were never diagnosed with diabetes, not taking insulin or oral medications for blood glucose control, able to hear and understand a common language (Hiligaynon, English or Tagalog), and all adults aged 18-59 years old with signed written informed consent. Exclusion criteria included those who were pregnant, lactating, with illness having a likely prognosis of less than one-year, psychiatric illness, those who were less than 18 years old and refused to participate. Using the inclusion and exclusion criteria, minus the unreturned questionnaires and tool with missing data, a total of 400 eligible participants were included in the final sample of the research, with an overall response rate of 80%.

Measures

Pilot and Pre-testing. The simplified Finnish Diabetes Risk Score (FINDRISC) Questionnaire, Health Literacy Survey Short Form 12 (HLS-SF12), and Health-Promoting Lifestyle Profile II (HPLP II) instruments were all originally written in English. The HLS-Asian Tagalog (Agosto et al., 2018) and the HPLP II Hiligaynon (Beliran & Legaspi, 2014) were utilized in this study after being granted permission for its use. Permission to use the original HPLP II (Walker & Hill-Polerecky, 1995) and HLS-SF12 (Duong et al., 2019) were obtained. Since previous studies were conducted in urban settings, pilot testing among 30 conveniently selected adults in the accessible population was carried out. These participants were not included in the final sample population. The reliability testing for the translated versions of HLS-SF 12 and HPLP II resulted in acceptable Cronbach's alpha coefficients of .71 and .89, respectively. Since subscales were utilized, composite reliability for both HLS-SF12 and HPLP II was also determined, resulting in composite reliability coefficients of .93 and .90, respectively.

Sociodemographic Questionnaire & Diabetes Risk Score. A researcher-made questionnaire to determine the sociodemographic characteristics was constructed. Individual characteristics such as age bracket, sex, civil status, educational attainment, monthly income, employment status, type of family structure, health status, presence of health insurance, and a number of doctor's visits in the last year were obtained using the researcher-made questionnaire for sociodemographic. Permission to use the original (Lindström et al., 2010) and the simplified (Ku & Kegels, 2013) FINDRISC questionnaire were obtained from the authors. The simplified tool was utilized to determine the diabetes risk scores. The decision was based on its applicability to Filipinos and the need for less expertise and equipment in a resource-constrained setting without compromising its performance. A cut-off diabetes risk scores greater than or equal to seven (≥ 7) was the decisional score for the participants to be considered at high risk for diabetes, which is in line with previous studies (Ku & Kegels, 2013).

Health Promoting Behavior Questionnaire. The HPLP II is a 52-item, four-point, Likert-styled instrument consisting of the following subscales: spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management. The HPLP II measured the health behavior scores of the participants. The 4-point response scale consists of 1 representing "never", 2 as "sometimes", 3 as "often", and 4 as "routinely", which was used to determine the frequency of each behavior. The tool has been reported to have established content validity, construct validity, criterion-related validity, and reliability, with an alpha coefficient of internal consistency of .94 and alpha coefficients ranging from .79 to .87 for all subscales. On the other hand, the HPLP II Hiligaynon reported acceptable face validity and internal consistency of the

translated questionnaire. The recommended use of means rather than sums of scale items to retain the metrics of item responses and to allow meaningful comparison of scores across subscales was implemented. A mean of ≥ 2.50 was considered to be a positive health behavior, in line with previous studies (Beliran & Legaspi, 2014; Sutherland et al., 2012).

Health Literacy Questionnaire. Duong et al. (2019) advanced the use of a new comprehensive HLS-SF12, originally derived from the original HLS-EU-Q47, consisted of 12 items and validated among different groups of the Asian population. The instrument includes the three subscales: healthcare, health promotion, and disease prevention. It consists of a 4-point response scale, which translates 4 as "very easy", 3 as "easy", 2 as "difficult", and 1 as "very difficult", to determine the level of difficulty of each item in different components. The HLS-SF12 English version demonstrated high alpha coefficient reliability of .85, good criterion-related validity, and a high level of item-scale convergent validity (Duong et al., 2019). On the other hand, the HLS-EU-Q47 Tagalog (Briones, 2017) reported general health literacy Cronbach's alpha coefficient of .91 and subscale Cronbach's alpha coefficients ranging from .80 to .85. The general indices for HLS-SF12 were standardized to unified metric scores from 0 to 50 using the formula $\text{index} = (M-1) \times (50/3)$. The health literacy index was obtained by calculating the total scores of the individual's responses to all 12 items. The classification of health literacy indexes and its descriptive interpretation were as follows: 0-25, inadequate; >25-33, problematic; >33-42, sufficient, and >42-50, excellent (Sørensen et al., 2013).

Data Collection

After completion of written informed consent, the survey was initiated. Each participant was assigned with a serial number to ensure anonymity. The identifying number was double-checked with the name on the master list, while the serial number was written on the consent form and every page of the research instrument. The responses were recorded on the simplified FINDRISC questionnaire, and the waist circumference (cm) of each participant was measured. Ten barangay health workers were officially hired to help in the conduct of the survey. All have attended the orientation and skills check-off for proper data collection and waist circumference measurement. Consistency in data collection was ensured through carrying out uniform protocols, adapted from WHO STEPS Surveillance Manual 2008, which included step-by-step details for measuring waist circumference and obtaining self-reported answers. Diabetes risk scores were derived from participant's responses and values of waist circumference. For the health literacy and health behavior questionnaires, an item-by-item and word-by-word reading of the respective instrument was employed. The choices for the answers after each item were repeatedly provided, using a cue card as a memory aid for the participants. All the responses were recorded after that.

Data Analysis

All raw data were encoded in Microsoft Excel®2014 and exported to the IBM®2019 software for SPSS®2019 statistical testing. Data were analyzed using descriptive statistics, Levene's, Independent *t*, and Pearson's *r* correlation tests. Statistical significance was set at $< .05$. Parametric statistics were used to determine significant differences between the health literacy and health behaviors of adults, grouped according to diabetes risk, and determine the relationship between the two variables. The homogeneity in the sample variance was met as evidenced by the *p*-values for health literacy indexes and health behavior scores, $p = .487$ and $p = .072$, respectively, which meant that the requirement of equal variance for utilizing parametric testing is appropriate. Since adults at high risk and low risk for diabetes were two sub-samples in a given total sample, Levene's test was appropriate to determine equality in variance (Derick et al., 2018). To quantify the degree of difference between groups, Hedges *g* was utilized in this study. This is an appropriate measure of effect size when two sample sizes have a similar standard deviation but different sample sizes (Borenstein et al., 2011). Moreover, it is emphasized that the effect size (ES) presented in this study was based on a correlation effect size due to the research design. This is represented as a typology of $\text{cor}ES$ (Fitz-Gibbon, 2002). Hedges *g* above .4 is interpreted as medium $\text{cor}ES$ in meta-analysis studies (Brydges, 2019; Gignac & Szodorai, 2016).

Ethical Considerations

Research ethics committee approval from OVCAA UP Open University Los Banos, Laguna, Philippines was accomplished through the application for ethical review before the conduct of the study (Document date and number: 11 March 2019; 0111-1900-0064-8507). The procurement of written informed consent and an official permit from the barangay ensured individual and collective autonomy. The consent was written in the language understood by the participants. Moreover, the following elements were explained: the purpose of the study, expected duration of participation, description of procedures to be followed, disclosure of confidentiality, minimal risk involvement, compensation, principal researcher's contact information, refusal to participate, and voluntary withdrawal options at any time without penalty or loss of benefits.

Results

In general, the participant's age ranged from 18 to 59 years ($M=36.19$, $SD=11.58$) and were predominantly males (53.3%); young adults (18 to 44 years old) (71.3%), married or in a common-law relationship (70.8%), had at least a high school level of education (47.3%), and in a nuclear type of family structure (62.7%). Almost three-quarters (71.8%) claimed to have health insurance, with almost all of the population (92.8%) reported having no medical condition. This may owe an explanation to just above half

(57.0%) of the population seeking doctor's consultation one to three times in the last year. Only half of the participants (50.2%) reported to have been employed, and the majority of them have the lowest bracket of family income amount of ≤5,000 Php per month (84.3%) (Table 1).

Table 1 Distribution of participants according to socio-demographic and health characteristics

Characteristics	Frequency	Percentage
Entire group	400	100
Age		
18-44 (young adult)	289	72.3
45-54 (middle-aged)	81	20.2
55-59 (older adult)	30	7.5
Sex		
Male	212	53.2
Female	188	46.8
Civil status		
Married/Common Law	283	70.8
Single	68	22.0
Widowed	21	5.3
Separated	8	2.0
Educational level		
Elementary	132	33.0
Highschool	189	47.2
Vocational	8	2.0
College	71	17.8
Work status		
Employed	201	50.2
Unemployed	199	49.8
Family structure		
Nuclear	251	62.7
Extended	128	32.0
Dyad	8	2.0
Single	13	3.3
Monthly income		
≤ 5,000 (lowest)	337	84.2
5,001-9,999 (lower)	56	14.0
≥ 10,000 (low)	7	1.8
No. of doctor visits in the last year		
Never	158	39.5
1-3	228	57.0
4-6	10	2.5
≥ 7	4	1.0
Health insurance		
With	287	71.8
Without	113	28.2
Health status		
With a diagnosed medical condition	29	7.2
Without diagnosed medical condition	371	92.8
Diabetes risk status		
High risk	106	26.5
Low risk	294	73.5

The data in Table 1 also presents a remarkably lower percentage of the adults reported to have a diagnosed medical condition (7.2%); however, it may not reflect the real situation since it appears that just about less than a half (39.5%) of the adults claimed never to seek a doctor in the

last year. Based on diabetes risk assessments, out of 400 respondents, 106 participants (26.5%) were classified as high risk for diabetes, while 294 respondents (73.5%) were grouped as low risk for diabetes.

Table 2 shows the differences in health literacy indexes between adults at high and low risk for diabetes. Although the results showed the presence of low levels of health literacy, both in the high-risk group ($M = 25.20$, $SD = 4.76$) and low-risk group ($M = 27.66$, $SD = 4.69$), there is sufficient evidence that supports a significant difference between the health literacy index mean scores of adults among the two groups, $t(398) = -4.61$, $p = .000$, at .05 level

of significance. The high-risk group ($M = 25.20$, $SD = 4.76$) showed significantly worse health literacy indexes compared to the low-risk group ($M = 27.66$, $SD = 4.69$). Moreover, correlation effect size, $corES = .52$ (Hedges g), revealed a medium effect, which meant that the level of risk for developing diabetes had a moderate magnitude effect on the differences between their health literacy levels. Specifically, among the three health dimensions of health literacy, the disease prevention subscale obtained the lowest health literacy indexes for both groups, high risk ($M = 24.21$, $SD = 6.30$) and low risk ($M = 26.81$, $SD = 5.94$).

Table 2 Differences in the means of health literacy index, grouped according to diabetes risks: high risk vs. low risk

Health literacy index	<i>M</i>	<i>SD</i>	<i>t</i> -value	<i>corES</i> (Hedges <i>g</i>)	<i>p</i> -value
Healthcare					
High	25.47	6.19	-4.98	.56	.000*
Low	28.64	5.40			
Disease prevention					
High	24.21	6.30	-3.79	.43	.000*
Low	26.81	5.94			
Health promotion					
High	25.90	5.01	-2.48	.28	.013*
Low	27.59	6.11			
General health literacy					
High	25.20	4.76	-4.61*	.52	.000*
Low	27.66	4.69			
Overall health literacy index	27	5			

* $p < .05$ (significant)

Table 3 Differences in the means of health-promoting behaviors, grouped according to diabetes risks: high risk vs. low risk

Health behaviors	<i>M</i>	<i>SD</i>	<i>t</i> -value	<i>p</i> -value
Nutrition				
High	2.24	.702	-1.23	.220
Low	2.33	.626		
Health responsibility				
High	2.28	.607	2.46	.015
Low	2.20	.555		
Spiritual growth				
High	2.66	.647	1.88	.061
Low	2.53	.596		
Stress management				
High	2.38	.719	-.84	.440
Low	2.32	.673		
Physical activity				
High	1.94	.720	-.67	.503
Low	1.99	.635		
Interpersonal relationship				
High	2.41	.662	.72	.475
Low	2.36	.601		
General health behaviors				
High	2.32	.708	-.81	.420
Low	2.29	.635		
Overall health behaviors	2.3	.672		

* $p < .05$ (significant)

Table 3 shows the differences in the mean scores of health behaviors between adults at high and low risk for diabetes. The health behaviors of adults at high risk ($M = 2.32$, $SD = .708$) and low risk ($M = 2.29$, $SD = .635$) were both

considered as negative health-promoting behaviors. Consistently, statistical testing showed no significant difference between the health behaviors of adults grouped according to their diabetes risk, $t(398) = -.81$, $p = .420$.

Analysis of the subscales showed consistently negative behaviors in five health behavior subscales, except in the spiritual growth, which had a positive health behavior for both adults at high risk ($M = 2.66$, $SD = .647$) and low-risk group ($M = 2.53$, $SD = .596$). Among the six subscales of

health behaviors, the lowest health behavior mean scores were in the physical activity subscale, both in the high risk ($M = 1.94$, $SD = .720$) and the low-risk group ($M = 1.99$, $SD = .635$). The highest health behavior scores were in the spiritual growth subscales.

Table 4 Correlation between health literacy indexes and health behavior scores, grouped according to high risk, low risk, and the entire group.

Variables	r	p-value	Interpretation
High	.43	.000*	Significant moderate positive
Low	.13	.029*	Significant weak positive
Overall	.17	.000*	Significant weak positive

* $p < .05$ (significant)

Table 4 shows that there is a statistically significant relationship ($p < .05$) but a moderately positive correlation ($r = .43$) between the health literacy and health-promoting behaviors of adults at high risk for diabetes. Furthermore, a statistically significant relationship ($p < .05$), but a weak positive correlation ($r = .13$) exists between health literacy and health behaviors among adults in the low risk for diabetes group. Correspondingly, the same significant relationship ($p < .05$) but a weak positive correlation ($r = .17$) exists when adults were taken as an entire group.

Discussion

The results practically implied that both adults at high and low risk for diabetes have difficulties finding, understanding, judging, and applying health information with the worst regards to disease prevention. Adults at high risk for diabetes have difficulty accessing information regarding medical issues and accessing the information on their risk factors for health, as they have the lowest mean scores in their capacity to find information regarding healthcare and access information regarding disease prevention. It is also important to note that adults in the high-risk group had difficulty applying health information regarding what determines the promotion of health in their physical and social environment, such as doing physical exercises. On the other hand, having a relatively higher literacy index in utilizing information in seeking care and health treatments has favorable and unfavorable consequences. A favorable example of which is when adults at low risk for diabetes can make informed decisions on medical issues; however, the challenge lies in the decision making regarding the proper time to consider a situation to be an emergency. Furthermore, the disparity between the non-uniform trends of health literacy scores in health promotion and healthcare dimensions between the two groups could be ascribed to a greater percentage of the adults, classified as low risk for diabetes, and categorized as having the lowest socio-economic status, taking more advantage of available free healthcare services compared to their high-risk counterpart. However, this is still considered as suboptimal visits to a healthcare provider, with the study results showing just a slightly higher percentage of adults visiting

a medical doctor at least 1-3 times (57%) in a year compared to those who had never seen one (39.5%).

The study results are consistent with the results of other research that involved populations with lower socio-economic status in local studies (Agosto et al., 2018). This is also parallel to the findings of most international studies among general adults (Choi et al., 2013; Coffman et al., 2012; Jordan & Hoebel, 2015) that revealed low, limited, problematic, or inadequate health literacy descriptions among its study population. However, the study results contrast to the results of studies that showed sufficient and acceptable health literacy (Chahardah-Cherik et al., 2018; De Castro et al., 2014; Tol et al., 2014) among adults with diagnosed diabetes. The difference in the results could be credited to the fact that the population mentioned in these studies was among adults already diagnosed with diabetes compared to the studies discussed earlier, among general adults. Furthermore, a higher prevalence of limited health literacy was reported in the population surveyed in the community compared with those who attended primary care or hospitals (Abdullah et al., 2019).

In terms of health behaviors, the results of this study are the same as the results of other studies conducted on other chronic diseases (Maheri et al., 2016; Mohsenipou et al., 2016) and adults stratified to different levels of diabetes risk (Sutherland et al., 2012), which revealed that the levels of physical activity and the levels of spiritual growth are the subscales with the lowest and highest levels, respectively. The data imply that in adults with a high risk of diabetes, the physical dimensions represented by the subscales of nutrition and physical activity were uniformly lower than those in the low-risk group. In contrast, health behavior subscales of those adults at high risk for diabetes that appeal to the psychological, spiritual, and social aspects had consistently higher scores than their low-risk counterparts. It could mean that adults in the high-risk group have relatively lower physical health behavior scores but somewhat higher psychosociospiritual health behavior scores than those in the low-risk group. A study among diabetic and non-diabetic adults in Brazil (De Oliveira et al., 2018) showed partially consistent analogous results where people with diabetes had better dietary habits than those without diabetes but still had risk behaviors such as insufficient physical activity. It is remarkable to note that if

adults at high risk for diabetes are to be considered as future diabetics, while adults at low risk for diabetes remained to be non-diabetics, it could imply that health behaviors in different subscales could vary in results, but in non-uniform directions. To wit, one subscale may connote desirable health behaviors but the others like the opposite.

The results of this study are similar to the results of a study among low income, low education, middle-aged Hispanics (Sutherland et al., 2012), which reported a higher mean score of health responsibility, interpersonal relationship, and stress management on those adults with a higher risk for diabetes than those adults with lower risk. In the case of health responsibility, an example to better understand this situation is that in developing countries, health decisions are often not made by individuals but are made collectively by family members. This is a cultural difference among Filipino adults, especially in a rural setting. On a particular issue, an individual, such as a husband, would decide on behalf of his wife. Overall, the level of health behaviors among adults at high risk and low risk for diabetes is just the same. This is consistent with the findings of a study among low-income Latino adults that states no significant differences between adults in different levels of diabetes risk when it comes to their level of engagement in physical activity, the extent of monitoring nutrition, and owing to one's own health responsibility (Sutherland et al., 2012).

The results of statistical testing that revealed no significant difference between the health behavior mean scores of adults at high and low risk for diabetes denote that adoption of risk reduction behavior among the entire population of adults, with special regards to the level of physical activity and nutrition, are homogeneously low. Thus, an all-adult inclusion effort is needed to improve awareness of the degree of risk for developing diabetes, increase promotion of healthy behaviors and advance the availability of evidence-based lifestyle interventions to reduce the growth in new cases of diabetes. The results of this study could not rule out the effect of the adult's level of risk for diabetes on the level of their health behaviors. However, it could imply that the sample of the adult population seems to give priority to better their spirituality than to adopt healthy behaviors in other subscales, as evidenced by higher spiritual behaviors scores.

Most studies consistently report a low level of health behaviors among adults in a low-income and rural setting. A probable explanation about the lacking influence of diabetes risk level on health behaviors could be supported by the absence of studies from low and middle-income countries that could show the association between health behaviors and reduction in diabetes risk, particularly one that employed higher hierarchical research evidence. This result is further supported by a sensitivity analysis study (Feldman et al., 2017), which revealed no single health behavior that drives the relationship between diabetes risk and health behaviors, suggesting that there could be interactive effects with other variables. One suggestive independent variable in this study is health literacy, where

a significant difference between adults at high and low risks for diabetes exists.

The study revealed a significant positive relationship between health literacy and health behaviors. This implies that the adult's health literacy indexes have significantly influenced their health behaviors. Limitations on the interpretative value of correlation results were present, but with the utilization of the Health Promotion Model (Pender et al., 2011) and the Health Literacy Conceptual Model (Sorensen et al., 2013) as the theoretical basis of this study, the existing relationship between health literacy and health behavior is supported. This is consistent with the results of other researchers who worked on the population of adults with known cardiovascular diseases (Aaby et al., 2017), infectious respiratory diseases (Sun et al., 2013), and diabetes (Chahardah-Cherik et al., 2018; Kim et al., 2018; Yeh et al., 2018). The moderate magnitude of correlation could be credited to the non-uniform variation of the direction of scores in all the subscales of health-promoting behavior. A significant weakening in the correlation could be ascribed greatly to surprisingly higher spiritual behavior scores among adults, which could pull up higher a supposedly low general health behavior scores in relation to a uniformly lower health literacy index.

Numerous literatures exist about the relationship between health literacy and health behaviors among healthy adults (Hansen et al., 2015; Suka et al., 2015) or even individuals with other disease risks (Sun et al., 2013; Wong et al., 2018). However, there is a conflicting study that reports no significant association between health literacy and some measures of health outcomes in a random sample of adults who were already diagnosed with diabetes (Singh & Aiken, 2017) in Western Jamaica. Furthermore, a meta-analysis report (Al Sayah et al., 2015) among 723 eligible studies about the relationship between health literacy and health outcomes also proposes that there is still insufficient or inconsistent evidence that independently associates health literacy with health outcomes adults diagnosed with diabetes. Thus, it is still premature to advance research with higher hierarchical evidence since there are still no sufficient data to suggest the independent relationship between health literacy and health outcomes.

The study utilized a large sample size, implemented a random probability sampling technique, and garnered a high response and return rate. This was a good representation of the target population regarding adults in the rural setting. It was found out that even in the remote rural setting, health literacy had a significant positive relationship with health behaviors. Healthcare workers, including nurses, need to focus on increasing the health literacy of adults, especially those who are at high risk for diabetes, to facilitate the development of healthy behaviors. Moreover, the risk assessment was only limited to diabetes risk factors such as age, sex, waist circumference; family history of diabetes, high blood sugar, and high blood pressure; and measurement of waist circumference to estimate diabetes risk levels. Health literacy and health

behaviors might be different in adults who have already been diagnosed with diabetes. However, the tool for assessing diabetes risk could help healthcare workers who have less training since it is practical, cost-effective, and easy to implement.

The result of non-significant differences between the health behaviors of adults at high and low risk for diabetes should not be misunderstood as a failure of the study, but instead, a springboard for another research to scrutinize the characteristics of these adults that influence their health behaviors. Adults at high risk for diabetes had low health behavior scores, but their health behavior subscale scores in spiritual growth, health responsibility, and interpersonal relationships were better compared to their low-risk counterparts. Further study of the characteristics of adults at high risk for diabetes that makes them have better scores in the aforementioned subscales of health behavior is recommended.

On the other hand, the significant difference between the health literacy of the two groups of adults had practical implications. The prioritization of health education among those at high risk for diabetes should be in place, as the economy of practicing health information campaigns has always been costly. However, the needs of those adults at low risk should also not be overlooked, as the health behaviors for both groups had no significant difference. Disease prevention, being the subscale with the worst health literacy index for both adults at high and low risk for diabetes, should be a major concern in implementing health promotion projects. A greater number of adults have low health behaviors in nutrition, physical activity, and health responsibility, more so a higher percentage of adults in the low-risk group. Improving the health literacy of adults regarding where to find information on proper nutrition, practical exercises, and family members' inclusion in support of one's health responsibility is a target objective.

Limitations

Caution is advised about the temporality of the results between variables. Since this a cross-sectional study, direct causality cannot be inferred. This study was only limited to diabetes risk factors such as age, sex, waist circumference; family history of diabetes, high blood sugar, and high blood pressure; and measurement of waist circumference to estimate diabetes risk levels. Health literacy and health behaviors might be different in adults who have already been diagnosed with diabetes, as well as in other settings and populations.

Conclusion

The classification of adults according to diabetes risks had brought light to the fact that adults in the accessible population do not only have a low level of health literacy but an alarming inadequate health literacy. This is remarkably evident in adults at high risk for diabetes, inclined to have worse health literacy compared to those adults who have a low risk for diabetes. Thus, the total inclusion of adults with

low health literacy in health education could avoid the worsening effects of diabetes in the underprivileged population. The significantly positive correlation between health literacy and health behavior should be a calling for political will to push for government officials, legislators, and stakeholders to institutionalize programs that could increase health information competencies, such as making health information available in strategic health stations, taking advantage of multimedia broadcast advertisements, disseminating free health information through text messaging, and utilizing language appropriate, and "no read-no write" friendly pamphlets. Furthermore, the local government unit is suggested to capitalize on pre-existing public education infrastructures to deliver health information among the locales, as remediation for the low health literacy, as well as a starting solution for disease prevention against diabetes.

Declaration of Conflicting Interest

The author reports no actual or potential conflicts of interest.

Funding

The author independently funded the study.

Acknowledgment

The author wishes to thank all the participants for participating in the study and the barangay health workers to engage in data collection. The author is grateful to Quennie R. Ridulme, MAN, RN, for her mentorship and guidance and to Ryan Michael Oducado, PhD, RN, RM, LPT, for suggesting revisions in the manuscript suitable for publication.

Author Biography

Christian Sandor B. Ydri, MAN, RN, CCRN is an alumnus and the first Chancellor's lists graduate of the Master of Arts in Nursing Program of the University of the Philippines Open University, Los Banos, Philippines.

Author Contribution

CSY solely conceptualized the study, actively supervised data collection, was intensively involved in data analysis, and exclusively approved the final manuscript.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical considerations.

References

- Aaby, A., Friis, K., Christensen, B., Rowlands, G., & Mairdal, H. T. (2017). Health literacy is associated with health behaviour and self-reported health: A large population-based study in individuals with cardiovascular disease. *European Journal of Preventive Cardiology*, 24(17), 1880-1888. <https://doi.org/10.1177/2047487317729538>
- Abdullah, A., Liew, S. M., Salim, H., Ng, C. J., & Chinna, K. (2019). Prevalence of limited health literacy among patients with type 2 diabetes mellitus: A systematic review. *PloS One*, 14(5), e0216402. <https://doi.org/10.1371/journal.pone.0216402>
- Adriaanse, M. C., Twisk, J. W. R., Deikler, J. M., Spijkerman, A. M. W., Nijpels, G., Heine, R. J., & Snoek, F. J. (2008). Perceptions of risk in adults with a low or high risk profile of developing type 2 diabetes: a cross-sectional population-based study. *Patient*

- Education and Counseling, 73(2), 307-312. <https://doi.org/10.1016/j.pec.2008.06.009>
- Agosto, H. G. C., Briones, M. V. A., & Palatino, M. C. (2018). Correlates of health literacy among Filipinos aged 50-70 years old belonging to low-income families in a selected community. *Acta Medica Philippina*, 52(3). <https://doi.org/10.47895/amp.v52i3.397>
- Al Sayah, F., Majumdar, S. R., Egede, L. E., & Johnson, J. A. (2015). Associations between health literacy and health outcomes in a predominantly low-income African American population with type 2 diabetes. *Journal of Health Communication*, 20(5), 581-588. <https://doi.org/10.1080/10810730.2015.1012235>
- Beliran, S. P., & Legaspi, M. S. (2014). Health-promoting behaviors and quality of life of Filipino older persons. *Asia Pacific Journal of Education, Arts and Sciences*, 1(5), 11-20.
- Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2011). *Introduction to Meta-Analysis*. West Sussex, United Kingdom: John Wiley & Sons.
- Briones, M. V. (2017). *Health literacy among Filipino adults belonging to low-income families and its association with cancer screening utilization: A cross-sectional study*. (MSc. Epidemiology (Public Health) Thesis), University of the Philippines Manila.
- Brydges, C. R. (2019). Effect size guidelines, sample size calculations, and statistical power in gerontology. *Innovation in Aging*, 3(4), igz036. <https://doi.org/10.1093/geron/igz036>
- Chahardah-Chenik, S., Gheibizadeh, M., Jahani, S., & Cheraghian, B. (2018). The relationship between health literacy and health promoting behaviors in patients with type 2 diabetes. *International Journal of Community Based Nursing and Midwifery*, 6(1), 65. <https://doi.org/10.30476/IJCBNM.2018.40.815>
- Choi, S. E., Rush, E., & Henry, S. (2013). Health literacy in Korean immigrants at risk for type 2 diabetes. *Journal of Immigrant and Minority Health*, 15(3), 553-560. <https://doi.org/10.1007/s10903-012-9672-9>
- Coffman, M. J., Norton, C. K., & Beene, L. (2012). Diabetes symptoms, health literacy, and health care use in adult Latinos with diabetes risk factors. *Journal of Cultural Diversity*, 19(1), 4-9.
- Conserva, L. (2014). 1 of 5 Ilonggos suffers diabetes. *The Daily Guardian*. Retrieved from <http://www.thedailyguardian.net/index.php/local-news/41653-1-of-5-ilonggos-suffers-diabetes-xx>
- de Castro, S. H., Brito, G. N. O., & Gomes, M. B. (2014). Health literacy skills in type 2 diabetes mellitus outpatients from an university-affiliated hospital in Rio de Janeiro, Brazil. *Diabetology & Metabolic Syndrome*, 8(1), 1-5. <https://doi.org/10.1186/1758-5996-6-126>
- de Oliveira, A. P. D. N., Maia, E. G., Silva, F. M., Martins, A. P. B., & Claro, R. M. (2018). Needed improvements in diabetes prevention and management in Brazil. *Preventing Chronic Disease*, 15, E153. <https://doi.org/10.5888/pcd15.180269>
- Derrick, B., Ruck, A., Toher, D., & White, P. (2018). Tests for equality of variances between two samples which contain both paired observations and independent observations. *Journal of Applied Quantitative Methods*, 13(2), 36-47.
- Duong, T. V., Aringazina, A., Kayupova, G., Pham, T. V., Pham, K. M., Truong, T. Q., ... Majid, H. A. (2019). Development and validation of a new short-form health literacy instrument (HLS-SF12) for the general public in six Asian countries. *HARP Health Literacy Research and Practice*, 3(2), e91-e102. <https://doi.org/10.3928/24748307-20190225-01>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Feldman, A. L., Long, G. H., Johansson, I., Weinhall, L., Färm, E., Wennberg, P., ... Rolandsson, O. (2017). Change in lifestyle behaviors and diabetes risk: Evidence from a population-based cohort study with 10 year follow-up. *International Journal of Behavioral Nutrition and Physical Activity*, 14(1), 1-10. <https://doi.org/10.1186/s12966-017-0480-8>
- Fitz-Gibbon, C. T. (2002). A Typology of Indicators for an Evaluation-Feedback Approach 'in A.J. Visscher and R. Coe (Eds.) School Improvement Through Performance Feedback. In A. J. Visscher & R. Coe (Eds.), *School improvement through performance feedback*. Lisse: Swets and Zeitlinger.
- Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, 102, 74-78. <https://doi.org/10.1016/j.paid.2016.06.069>
- Gloor, R. (2014). Health literacy. Retrieved from <https://www.pchrd.dost.gov.ph/index.php/news/library-healthnews/3590-health-literacy>
- Hansen, H. R., Shneyderman, Y., & Belcastro, P. A. (2015). Investigating the association of health literacy with health knowledge and health behavior outcomes in a sample of urban community college undergraduates. *American Journal of Health Education*, 46(5), 274-282. <https://doi.org/10.1080/19325037.2015.1055016>
- International Diabetes Federation. (2014). *Global diabetes scorecard: Philippines, 2014*. Retrieved from <http://www.idf.org/global-diabetes-scorecard/assets/downloads/Scorecard-29-07-14.pdf>
- Jordan, S., & Hoebel, J. (2015). Health literacy of adults in Germany-Findings from the 'German Health Update', wave 2013-2014. Susanne Jordan. *European Journal of Public Health*, 25(suppl_3), ckv173.043. <https://doi.org/10.1093/eurpub/ckv173.043>
- Kim, K. A., Kim, Y. J., & Choi, M. (2018). Association of electronic health literacy with health-promoting behaviors in patients with type 2 diabetes: A cross-sectional study. *CIN: Computers, Informatics, Nursing*, 36(9), 438-447. <https://doi.org/10.1097/CIN.0000000000000438>
- Kowall, B., Rathmann, W., Stang, A., Bongaerts, B., Kuss, O., Herder, C., ... Huth, C. (2017). Perceived risk of diabetes seriously underestimates actual diabetes risk: The KORA FF4 study. *PLoS One*, 12(1), e0171152. <https://doi.org/10.1371/journal.pone.0171152>
- Ku, G. M. V., & Kegels, G. (2013). The performance of the Finnish Diabetes Risk Score, a modified Finnish Diabetes Risk Score and a simplified Finnish Diabetes Risk Score in community-based cross-sectional screening of undiagnosed type 2 diabetes in the Philippines. *Primary Care Diabetes*, 7(4), 249-259. <https://doi.org/10.1016/j.pcd.2013.07.004>
- Lindström, J., Absetz, P., Heriö, K., Peltonen, P., & Peltonen, M. (2010). Reducing the risk of type 2 diabetes with nutrition and physical activity—efficacy and implementation of lifestyle interventions in Finland. *Public Health Nutrition*, 13(6A), 993-999. <https://doi.org/10.1017/s1368980010000960>
- Maduramante, T. S., Orendez, J. D., Seculo, J. A., Trinidad, A. L. A., & Odacado, R. M. F. (2019). Health literacy: Knowledge and experience among senior students in a nursing college. *Indonesian Nursing Journal of Education and Clinic (INJEC)*, 4(1), 9-19. <https://doi.org/10.24990/injec.v4i1.227>

- Maheri, A., Sadeghi, R., Shojaeizadeh, D., Tol, A., Yaseri, M., & Ebrahimi, M. (2016). Associations between a health-promoting lifestyle and quality of life among adults with beta-thalassemia major. *Epidemiology and Health*, 38. <https://doi.org/10.4178/epih.e2016050>
- Mohsenipoua, H., Majlessi, F., Shojaeizadeh, D., Rahimiforooshani, A., Ghafari, R., & Habibi, V. (2016). Predictors of health-promoting behaviors in coronary artery bypass surgery patients: An application of Pender's health promotion model. *Iranian Red Crescent Medical Journal*, 18(9), e36871. <https://doi.org/10.5812/ircmj.36871>
- Pastakia, S. D., Ali, S. M., Kamano, J. H., Akwanalo, C. O., Ndege, S. K., Buckwater, V. L., ... Bloomfield, G. S. (2013). Screening for diabetes and hypertension in a rural low income setting in western Kenya utilizing home-based and community-based strategies. *Globalization and Health*, 9(1), 1-9. <https://doi.org/10.1186/1744-8603-9-21>
- Pender, N. J., Murdaugh, C., & Parsons, M. A. (2011). *Health promotion in nursing practice*. Boston: Pearson.
- Pilar, P. (2018). 2017 Health Situation of the Municipality of Pres Roxas, Capiz, Philippines. Philippines: President Roxas, Capiz.
- Pippitt, K., Li, M., & Gurgle, H. E. (2016). Diabetes mellitus: Screening and diagnosis. *American Family Physician*, 93(2), 103-109.
- Singh, S. G., & Aiken, J. (2017). The effect of health literacy level on health outcomes in patients with diabetes at a type v health centre in Western Jamaica. *International Journal of Nursing Sciences*, 4(3), 266-270. <https://doi.org/10.1016/j.inss.2017.06.004>
- Sorensen, K., Van den Broucke, S., Peleman, J. M., Fullam, J., Doyle, G., Slonska, Z., ... Brand, H. (2013). Measuring health literacy in populations: illuminating the design and development process of the European Health Literacy Survey Questionnaire (HLS-EU-Q). *BMC Public Health*, 13(1), 1-10. <https://doi.org/10.1186/1471-2458-13-948>
- Suka, M., Odajima, T., Okamoto, M., Sumitani, M., Igarashi, A., Ishikawa, H., ... Sugimori, H. (2015). Relationship between health literacy, health information access, health behavior, and health status in Japanese people. *Patient Education and Counseling*, 98(5), 660-668. <https://doi.org/10.1016/j.pec.2015.02.013>
- Sun, X., Shi, Y., Zeng, Q., Wang, Y., Du, W., Wei, N., ... Chang, C. (2013). Determinants of health literacy and health behavior regarding infectious respiratory diseases: A pathway model. *BMC Public Health*, 13(1), 1-8. <https://doi.org/10.1186/1471-2458-13-261>
- Sutherland, L. L., Weiler, D. M., Bond, L., Simonson, S., & Reis, J. (2012). Northwest Latinos' health promotion lifestyle profiles according to diabetes risk status. *Journal of Immigrant and Minority Health*, 14(6), 999-1005. <https://doi.org/10.1007/s10903-012-9641-3>
- Tol, A., Mohebbi, B., Sadeghi, R., Maheri, A. B., & Eshraghian, M. R. (2014). Determinants of health-promoting behaviors among type 2 diabetic patients: Voice of Iran. *Open Journal of Endocrine and Metabolic Diseases*, 4(09), 219. <https://doi.org/10.4236/ojemd.2014.49021>
- Walker, S. N., & Hill-Polerecky, D. M. (1995). *Psychometric evaluation of the health-promoting lifestyle profile II*. Unpublished manuscript. University of Nebraska Medical Centre, Omaha.
- Wilson, S. E., Rosella, L. C., Lipscombe, L. L., & Manuel, D. G. (2010). The effectiveness and efficiency of diabetes screening in Ontario, Canada: A population-based cohort study. *BMC Public Health*, 10(1), 1-12. <https://doi.org/10.1186/1471-2458-10-506>
- Wong, K. K., Velasquez, A., Powe, N. R., & Tuot, D. S. (2018). Association between health literacy and self-care behaviors among patients with chronic kidney disease. *BMC Nephrology*, 19(1), 1-8. <https://doi.org/10.1186/s12882-018-0988-0>
- Yeh, J.-Z., Wei, C.-j., Weng, S.-f., Tsai, C.-y., Shih, J.-h., Shih, C.-l., & Chiu, C.-h. (2018). Disease-specific health literacy, disease knowledge, and adherence behavior among patients with type 2 diabetes in Taiwan. *BMC Public Health*, 18(1), 1-15. <https://doi.org/10.1186/s12889-018-5972-x>

Cite this article as: Ydini, C. S. B. (2021). Health literacy and health-promoting behaviors among adults at risk for diabetes in a remote Filipino community. *Beitung Nursing Journal*, 7(2), 88-97. <https://doi.org/10.33546/bnj.1288>

Social stigma towards nurses taking care of patients with COVID-19 in Indonesia: A mixed-methods study

Beitung Nursing Journal
Volume 7(2), 98-106
© The Author(s) 2021
<https://doi.org/10.33548/bnj.1322>

Marisa Junianti Manik[✉], Siska Natalia, and Theresia

Abstract

Background: The condition of the Indonesians' unpreparedness for the COVID-19 pandemic has caused anxiety and fear. The public's fears of COVID-19 cases have led to a negative stigma. As part of health workers in disaster management's main pillars in health services, nurses are most vulnerable to infection and not free from the stigma.

Objective: This study aimed to describe the social stigma against nurses taking care of patients with COVID-19 and experiencing suspected or probable or confirmed COVID-19 cases in Indonesia.

Methods: This study was a mixed-method study using a sequential explanatory design-participant selection model. The selection of respondents used the convenience sampling technique. The number of respondents in the quantitative stage was 118 respondents. For qualitative data, selected participants were respondents with a stigma score of more than 21 nurses and willing to continue the interview process. There were 11 participants in the qualitative stage. This study used the modified Stigma Scale of the Explanatory Model Interview Catalog for quantitative data and four semi-structured questions to obtain qualitative data. Quantitative data were processed in descriptive statistics, and a thematic analysis was performed to analyze the qualitative data.

Results: The highest stigma score of 118 respondents was 37, and the lowest score was zero. The stigma score had a mean of 12.28 ($SD \pm 7.9$). The higher the score obtained leads to a higher level of stigma received. From a total of 11 participants interviewed, four main themes emerged: rejection, feeling down and afraid, sources of support, and professional vigilance.

Conclusion: The social stigma experienced by nurses comes from colleagues and society and impacts psychological distress. Support from families and colleagues strengthens nurses in facing social stigma. Nevertheless, nurses uphold the values to remain grateful and carry out professional responsibilities in taking care of patients. Nurses should be provided with psychological support and be prepared for disasters to provide excellent health services and reduce adverse mental health.

Keywords

coronavirus; COVID-19; Indonesia; nurses; social stigma

The world, including Indonesia, deals with a non-natural disaster in the form of an outbreak of Coronavirus Disease (COVID-19), an infectious disease caused by a type of newly discovered coronavirus. The genetic sequence of the new virus, called COVID-19, was officially announced by the World Health Organization (WHO) on 12 January 2020. The first status of COVID-19 was a global epidemic and

then upgraded to a pandemic status just within ten weeks after the first case was reported (WHO, 2020b). The disease outbreak has become a pandemic that can impact people's mental and psychosocial health conditions (Ministry of Health of Indonesia, 2020).

The first case in Indonesia had been officially announced on 2 March 2020 (Nursaini, 2020). The condition

Faculty of Nursing, University of Pelita Harapan, Tangerang, Indonesia

Corresponding author:

Marisa Junianti Manik, MN

Faculty of Nursing, University of Pelita Harapan

PK UPH Building-Soodman Boulevard, 15, Lippo Village, Tangerang, Indonesia

Telp. +6281519704427

Email: marisa.manik@uph.edu

Article Info:

Received: 19 January 2021

Revised: 16 February 2021

Accepted: 5 March 2021

This is an **Open Access** article distributed under the terms of the **Creative Commons Attribution-NonCommercial 4.0 International License**, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2526-151X

of the Indonesian public's unpreparedness for this pandemic was evident in the first week of the first cases publicly announced. There is growing anxiety in the community living around the first suspects confirmed with COVID-19 cases (Nuraini, 2020). The public feared the suspected and probable COVID-19 cases, which led to a negative stigma against them. This stigma took the form of exclusion and discrimination from the community. Health workers, such as nurses, who are part of COVID-19 disaster management's main pillars in health services, are also not free from the stigma. The stigma experienced by health workers was in the form of rejection by the community around the neighborhood or the nearby rented or boarding house. The most evident negative stigma reported was when the corpse of a dead nurse confirmed with COVID-19 was rejected by the community around the public cemetery in Central Java, Indonesia.

Health workers are most vulnerable to infection from patients who come to health care facilities because exposures from patients with COVID-19 are unavoidable (Tosepu, Effendy, & Ahmad, 2020; Wibowo, 2020). Besides, hospital care service flows for COVID-19 cases were still unclear in the pandemic's early days. The COVID-19 testing tools such as rapid tests were still limited, placing a higher risk of being exposed to health workers. The increasing number of health workers infected with COVID-19 is associated with the rising number of confirmed COVID-19 cases and patients' dishonesty with their previous travel history or symptoms (Tosepu et al., 2021; Wibowo, 2020).

Research on the health workers' mental health in handling COVID-19 in Singapore and India shows that one of the psychological distresses found was a social stigma (Chew et al., 2020). The experience shared by several health workers indicated that the stigma comes from the other health workers or friends. Health workers' mental health is essential in providing excellent health services, especially during a pandemic. Therefore, it is crucial to uncover the pictures of stigma to develop mental health support according to health workers' needs.

Social stigma in the health context is a negative relationship between a person or group of people with specific characteristics and diseases. In the pandemic context, this stigma means that people are labeled, stereotyped, discriminated against, treated separately, or experience loss of status because of their perceived relationship with the disease (WHO, 2020a).

Literature studies suggest that health workers are at significant risk of adverse mental health during the COVID-19 pandemic. The reasons include long working hours, risk of infection, lack of personal protective equipment, loneliness, physical exhaustion, and separation from family (Rajkumar, 2020). Another study focusing on mental health challenges during the COVID-19 pandemic found that mental health challenges, such as anxiety or fear of infection to depression, are in line with increased health workers' workload (Kar, Arefat, Kabir, Sharma, & Saxena, 2020).

One descriptive study in several health centers in India and Singapore found that 48 respondents (5.3%) experienced moderate to severe depression, 79 respondents (8.7%) mild to severe anxiety, 20 respondents (2.2%) very severe stress, and 34 respondents (3.8%) moderate to heavy levels of psychological stress (Chew et al., 2020). A possible contributing factor was social stigma, resulting in individuals having a higher tendency to express their psychological distress with physical symptoms (Chew et al., 2020). Literature studies emphasize the imbalance and mismatch between stigma mitigation, prevention, and containment of COVID-19. Those studies suggested short-term and long-term strategies for building empathy and social justice in current and future pandemics. Although the research in COVID-19 is relatively new, the stress from the stigma of COVID-19 may have similar mental health impacts with the previous research, including healthcare workers. Therefore, a strategy is needed to consider various health conditions and social identities to understand and reduce the stigma of COVID-19 (Logie & Turan, 2020).

At the beginning of the COVID-19 pandemic, few studies reveal the stigma experienced by nurses. Many studies have discussed the stigma among health workers but are still limited to survey studies. No research has explored the stigma experienced by nurses as health care providers who are at the same time experiencing the COVID-19 itself. This study aimed to uncover the pictures of the stigma against nurses taking care of clients with COVID-19 and experiencing as suspects or probable suspects or confirmed COVID-19 cases.

Methods

Study Design

This study was a mixed-method study using a sequential explanatory design-participant selection model established in two phases. The first phase was conducted with the quantitative methods, followed by the second phase of exploration with qualitative methods. The qualitative phase was emphasized and connected to the result of the first phase, with the intent is to purposefully select participants to best address the qualitative research questions (Creswell, 2018). The consideration for using mixed methods was to get a comprehensive and more detailed picture of the phenomena that occurred within the participants in the target population.

Participants and Study Setting

Quantitative strand

Respondents in this study were nurses taking care of COVID-19 patients in several private hospitals in Indonesia. The selection of respondents used the convenience sampling technique because it was difficult to reach the population in the pandemic situation, particularly at the beginning of the outbreak. The inclusion criteria were nurses taking care of COVID-19 patients and once experienced as probable suspect or confirmed COVID-19

cases. The number of participants who took part in quantitative research in this study was 118 respondents.

Qualitative strand

For qualitative data, selected participants were respondents with a stigma score of more than 21 nurses and willing to continue the interview process. After the researchers collected the quantitative data, a stigma score was established. The researchers identified 17 nurses who had more than a 21-stigma score. They were invited to participate in the second phase by email. 11 participants were interviewed.

Data Collection

Quantitative strand

The quantitative data were collected using a modified questionnaire from the Stigma Scale of the Explanatory Model Interview Catalog (EMIC Stigma Scale). This instrument was utilized after obtaining consent from the original author. The questionnaire was previously intended to measure the social stigma of stigmatized people for having leprosy and tuberculosis. The questionnaire was also translated into the Indonesian language (De Korte, Vellacott, Pongtiku, Rantetempang, & Van Brakel, 2018). There were 14 questions with four answer choices: yes, maybe, do not know, and no. Question number two was the only question with a reverse score (InfoNTD, 2020; Morgado et al., 2017). Each item was rated on a 4-point Likert scale, options being three = yes to zero = no. A total score of a stigma was computed by adding up individual items' scores. The maximum score is 42, and the minimum score is zero. The higher the score obtained by a respondent, the greater the indication of stigma. There is no stigma categorization of the total score (InfoNTD, 2020; Morgado et al., 2017). The EMIC stigma scale was confirmed to have good internal consistency and high item-total correlation (Chung & Lam, 2018). The research instrument was reliable, with a Cronbach's Alpha value of 0.88. The researcher collected quantitative data by compiling the survey into an online form using the Google platform and distributing a link by WhatsApp Messenger application to the nursing leaders in 13 private hospitals in Indonesia. The nursing leaders shared the survey link with their nursing staff. The quantitative data were collected in the first week of May 2020.

Qualitative strand

The qualitative data collection used an online semi-structured interview. Interview sessions were conducted in the third and fourth week of May 2020. The research instrument for obtaining qualitative data was semi-structured interview guidelines developed from the EMIC Stigma Scale to explore participants' stigma experiences. Two researchers with a nursing background conducted the interview using semi-structured interviews. The interview questions included (1) How was your experience as a nurse who is also a suspected or probable or confirmed COVID-19? (2) How did you experience working with other health

workers when you had experienced as suspected or probable or confirmed COVID-19? (3) How were the support of colleagues, family, and the people around you toward your profession and your experience? (4) Can you share the value that you get from this experience? The online interview was conducted by the WhatsApp voice call or Zoom application according to the participants' preference. The interviews took 45 to 60 minutes and were digitally audio-recorded to be transcribed verbatim in Indonesian.

Data Analysis

Quantitative strand

Quantitative data were summarized using descriptive statistics (mean, standard deviation, frequency) and processed in percentages based on each question's answers and each respondent's total stigma score. Data analysis was conducted using the IBM SPSS Statistics version 27.

Qualitative strand

The researchers performed a thematic analysis for the qualitative data. Data analysis processes included familiarizing with data, generating initial codes, searching for themes, reviewing themes, and defining and naming themes (Vaismoradi, Turunen, & Bondas, 2013). To establish this qualitative data's trustworthiness, the researchers employed member-checking by sending the transcripts to the participants to verify the data accuracy.

Ethical Consideration

This study obtained ethical clearance from the Institutional Review Board of the Mochtar Riady Institute for Nanotechnology (approval no. 2005005-04). In this light, the researchers gave the respondents the right to participate, and they could also stop participating during the research process. Permission to record the conversation was obtained after considering the participants' consent.

Results

Quantitative Results

Table 1 Distribution of respondents' characteristics by age and length of employment in their current hospital ($N = 118$)

Category	<i>n</i>	%
Age		
17 – 25 years	71	60.2
26 – 35 years	32	27.1
36 – 45 years	13	11.0
46 – 55 years	2	1.7
Length of work		
Less than one year	24	20.3
1 – 3 year	67	56.8
More than three year	27	22.9

The respondents' characteristics in this study were in the age range of 17-25 years old (60.2%), and 56.8% of the

participants have been working for one to three years at the current hospital (Table 1).

Most respondents, or around 72% underwent both rapid tests for antibody and swab-polymerase chain reaction (PCR). In March 2020, 29.7% of respondents became suspected, and 6.8% were confirmed COVID-19 (Table 2).

Table 2 Distribution of respondents' characteristics based on COVID-19 test and their status related to COVID-19 from March to May 2020 ($N = 118$)

Category	<i>n</i>	%
COVID-19 test		
Rapid test (Antibody)	15	12.7
PCR (Swab)	18	15.3
Rapid test and PCR	85	72

Table 2 (Cont.)

Status of COVID-19

<i>Suspected/ Probable cases</i>		
March	35	29.7
April	23	19.5
May	13	11
Not answer	47	39.8
<i>Confirmed cases</i>		
March	8	6.8
April	3	2.5
May	10	8.5
Never	97	82.2

The respondents' highest stigma score was 37, and the lowest score was zero. The mean score was 12.28 ($SD \pm 7.9$). The distribution of the respondents who answered each item of the stigma questionnaire varies (Table 3).

Table 3 Distribution of respondents based on question items of the EMIC Stigma Scale ($N = 118$)

No	Question	Yes	Maybe	No	Do Not know
1	Do you choose so that other people do not know about the COVID-19 that you are experiencing?	29	25	62	2
2	Have you discussed this issue with close people, people you can easily talk to? Example: close friend, family	110	1	5	2
3	Do you think you will be underappreciated or less respected because of this health problem?	21	40	53	4
4	Have you been humiliated because of this health problem?	11	17	87	3
5	Do your neighbors, coworkers, or the community disrespect you because of your health problems?	17	24	89	8
6	Do you think that coming into contact with you will be bad for those around you even after being treated?	21	35	59	3
7	Do you feel that other people are avoiding you because of this problem?	22	34	59	3
8	Has anyone refused to visit your home because of this condition even after you have been treated?	15	26	66	11
9	If they know about your health problems, will the people in your community have less respect for your family? For example, neighbors, coworkers	12	36	64	6
10A	If you have children, is your illness causing social problems for your child?	1	3	20	1
10B	If you have children in the future, can your illness cause social problems for your child?	7	25	53	8
11A	If you are not married, does this disease make it difficult for you to get married?	3	18	57	12
11B	If you are married, is this a disease-causing problem in your marriage?	2	3	23	0
12	Do you feel that this disease can make it difficult for people in your family to get married? Example: children, grandchildren, or siblings	17	29	61	11
13	Have you been asked to stay away from work or social groups?	28	9	78	3
14	Did you decide to quit your job or stay away from community groups?	24	7	85	2

Qualitative Results

In the second phase, 11 out of 17 participants had more than 21 stigma scores and were willing to be interviewed. Most of the interviewed nurses were female (82%) and were between 20 and 40 years old. More than half of the participants (82%) have been working for one to three years at the current hospital. The purpose of the qualitative phase is to gain a deeper understanding of the stigma experienced by nurses taking care of clients with COVID-19 and at the same time experiencing as suspected or

probable or confirmed COVID-19 cases at the beginning of the pandemic in March to May 2020. Four major themes emerged from the qualitative data, including (1) rejection, (2) feeling down and fatigue, (3) sources of support, and (4) professional vigilance.

Rejection

Participants experienced rejection from the social environment. Participants stated that they got cross-infection from the workplace, and the experience was exacerbated by rejection from others. Participants

expressed feelings of being feared and avoided by colleagues and people in their neighborhood. Stigma in the form of rejection was obtained from colleagues and other officers in the hospital. Participants stated that they felt both verbal and nonverbal rejection when being suspected or probable COVID-19 cases. The experiences were described in the following statements:

- "Yes, they said, you cannot come here" (p10)
- "Do not come close to me, or I will be positive too" (p10)
- "You do not come near us, get away from us" (p7)
- Participant 2 conveyed discrimination from friends who were quarantined because he was placed in a different room. "so, my friends were isolated, but I was isolated different from them" (p2)

Several participants expressed rejection by other professions. There were hospital employees who were openly evasive and keeping their distance away.

- "There are also other health workers who underestimated us; they wanted to go out like when we were in the same waiting room with us" (p8)
- "It feels like we are filthy, and that person keeps his distance, not entering the ICU" (p9)

This social stigma was also found in the adverse treatment of other health workers.

- "Yes, I feel rejected, my diagnosis has not been confirmed, it is still early, why are they so terrified" (p3)
- "We feel shunned even though we are fellow health workers" (p8)
- "(Hospital employee) when he met us, he avoided us" (p8)

Most participants also experienced rejection from the boarding house owner in the community because most of the participants lived in a boarding or rent house.

- "Suspicion arose from the boarding house owner. Yes, I informed them that I am taking care of the COVID-19 suspects. There is a stigma in the society; it looks like I will be expelled from the boarding house" (p5)
- "I could not go back to the boarding house because the owner was afraid that we would come home with the virus, afraid that other residents of the boarding house would be worried if, for example, they know that we are nurses caring for COVID patients" (p11)

The rejection was also obtained from the local people, online taxi drivers; some were indirectly conveyed to their families.

- "They (the local community) are afraid of me" (p1)
- "Stigma from them, wow there are positive people, you have to get out of this environment" (p5)
- "The taxi driver was shocked knowing I was a nurse. Then he pointed out the nurse should stay in isolation" (p11)

- "There was an incident where the community leader and my neighbor, not directly to me but my family, to my sister and my mother, said that I should not go home because I will spread the virus" (p3)

Feeling Down and Afraid

The stigma experienced by nurses caused psychological distress, such as being down, sad, and fearful. Some of the participants chose to hide their status as nurses. These stigmatized nurses also think about the adverse effects that could happen to their families and loved ones. The participants expressed fear and sadness because they felt they were treated differently after becoming suspected or probable for COVID-19 cases.

- "I am upset, even though I felt no symptoms, right" (p1)
- "I am also in a position to feel down right away. I Feel down. I am not accepted in this environment" (p5)
- "I feel despicable" (p6)
- "So sad, I am there to work, nothing else" (p7)
- "Feeling even more disappointed because when we were quarantined, there were also nursing colleagues and other health workers who avoided us" (p8)
- "It feels like we are filthy" (p9 & p11)

In this study, participants stated that they were afraid and anxious to reveal their identity as nurses because they were considered in close contact with COVID-19 patients.

- "It is because I do not want him to know my status, my job, so I have to lie" (p1)
- "I lose confidence too, feel afraid to use an online taxi, I am afraid to get questions" (p1)
- "Moreover, news began to appear that health workers were being kicked out from their boarding houses. I am cautious when I go outside. I am more afraid of the boarding house owner's response" (p2)
- "Well, I was asked, where are you going? I do not dare to answer. If I said I was assigned to a COVID hospital, I could be kicked out, so I just said, Yeah Ma'am, I am leaving for home" (p2)
- "At the time, there was news that a nurse was kicked out from her boarding house, so I was afraid of being rejected by my new boarding house. I had the thought of wanting to lie and hide my status as a nurse. I am afraid of being rejected in a new environment" (p9)
- "Yes, there was a feeling of fear, fear of not being accepted; people do not know that I am a nurse" (p9)
- "I heard that the boarding house owner said that I shouldn't stay there. I feel dizzy, wondering where to live and continue to quarantine in the hospital, but it means I would stay with others. I am afraid, and I have mixed feelings" (p11)

Source of Supports

This study indicated that participants felt discriminated when exposed to COVID-19, and they needed support. The support was considered as a reinforcement and counter-

attack due to the stigma experienced. Participants felt affirmative relief from fellow health workers who gave encouragement and offered prayers. The participants' most valuable support was from family, parents, and siblings who openly accepted, protected, and offered prayers for them.

- "Yes, I got prayers of support; the prayers from parents are powerful" (p1)
- "Family support, they always support, come to give vitamins, give support like that" (p5)
- "From my family, my parents who are in the village, usually they call me once a week, but now, they call me every night" (p7)
- "Support from family, siblings, friends who are also on duty here" (p8)
- "I feel most strengthened from the family, from my mother" (p9)

Another support comes from other professions, such as doctors and the hospital's Human Resource Department (HRD).

- "So far, there is support from the HRD, so we have been given a vitamin package. Also, every few days we get fresh milk, there are also lunch boxes, all kinds of things" (p3)
- "The support from colleagues is excellent. Support from a cardiologist, he cares so much" (p5)
- "Our intensivist is the best. He is very understanding. He desperately asked so that nurses are quarantined here so he can see them" (p6)
- "We must support each other. Prayer is the most important one" (p1)

Professional Vigilance

In general, participants interpreted this experience as a valuable experience and made them find values in life, even though they experienced the negative impact of stigma. Some of the values obtained are described in terms of spiritual values, increased self-awareness, and a responsibility to serve patients. Spirituality in this study did not focus on the sole relation about God but was also interpreted as the wisdom obtained through unpleasant experiences, making a person alive again and leading to satisfaction in understanding life. Almost all the participants expressed gratitude for this experience and grew closer to God.

- "I realized that this COVID also made me closer to God" (p1)
- "As long as God still gives a chance, as long as God still gives a healthy condition, opportunities, just do our part" (p11)
- "I feel even more grateful" (p3)

They also expressed gratitude to understand self-care and appreciate little things as stated:

- "Because I am a nurse, maybe I am more grateful because I can care about my patient more. Not being careless" (p6)

- "I even think of appreciating small things which are invisible, never considered." (p2)
- "I am more grateful because we appreciate the importance of cleanliness, the importance of taking care of each other" (p10)

A health protocol for risk management increased the sense of security for health workers and reduced disease transmission. Participants stated that this experience made them more aware of the health protocol standards.

- "Because our caring and attention are honed, even more, our alertness is honed more, more than usual" (p3)
- "First, maybe it should be safe. Just stay safe, do hand washing, drink vitamins, do the social distance with friends, to take care of them. So yes, we still use the N95, and I also ask everyone to do the health protocols when we take care of patients" (p5)
- "Be more vigilant, be more vigilant, do hand washing and keep distance, keep wearing a mask everywhere" (p8)

Participants stated that they continued to serve patients professionally even though they had experienced the impact of stigma, once felt afraid and anxious, and now are still at risk of being re-exposed to the COVID-19.

- "Because we are nurses to care for others, so I think we will treat the patient with the same action. Just like before, before this COVID-19. We continue to treat patients with the determination as it has been before" (p6)

Participants also stated that they had more empathy and compassion because of their personal experience of stigma. They were aware that patients and families could also experience social stigma because they were considered to transmit disease.

- "I care my patient even better, no more careless" (p6)
- "The patient cannot be visited; I see the family in front of ICU hoping with anxiety, waiting for the patient, but they cannot go inside the room, but they still stay in front of the door. It makes me sad" (p2)
- "Because of this situation, we know that this is our struggle, where our job leads us, what challenges will we face, how to embrace those around us" (p7)

Discussion

The quantitative and qualitative results indicate that COVID-19 causes some nurses to experience stigma. This result is in line with the statement of WHO regarding the social stigma caused by COVID-19. Individuals tend to be afraid of something new, and fear is associated with other straightforwardly (WHO, 2020a). The stigma associated with COVID-19 varies from the transmission, examination or testing, pain level, comorbid disease levels affect, newly appearing symptoms, and treatment. An incomplete

explanation of the symptoms causes individuals suffering from this disease to experience segregated and labeled/stigmatized (Bhattacharya, Banerjee, & Rao, 2020). The stigma has several components, namely (1) differentiating and labeling differences, (2) associating human differences with negative attributions or stereotypes, (3) separating 'us' from 'them,' (4) experiencing loss of status and discrimination (Pescosolido & Martin, 2015).

The data show that in question items of 1, 3, 6, 7, 13, and 14, more than 20 respondents answered 'yes.' These question items are in line with the exposure to the dimensions related to stigma as a multidimensional thing. Some of these dimensions are associated with stigma, namely social distance, covering facts or disclosures, negative influences, and danger perceptions (Pescosolido & Martin, 2015). The answer 'yes' to question number one means the respondent chose not to let others know about the COVID-19 status; this is a disclosure dimension. The meaning of the disclosure dimension is to hide the COVID-19 examination results, in line with the understanding that an individual diagnosed with a disease will conceal his condition from the public (Ashby, 2016). This dimension focuses on the negative consequences of disclosing the status or results of the COVID-19 examination. The disclosure aspect may also be increased when asking the closest people and family not to reveal secrets to avoid them feeling embarrassed and hoping that they will still be accepted in society (COVID-19 Response Acceleration Task Force, 2020).

The third question is about the feeling of disrespect, which is most often experienced by patients of other diseases with high stigma scores, such as leprosy (Adhikari, Kaehler, Chapman, Raut, & Roche, 2014). COVID-19, as a new disease, also causes a decrease in self-esteem, even in health workers who are infected with COVID-19. The sixth question is related to the dimension of stigma based on fear of danger, such as stigma against patients with psychiatric illness or stigma on criminal behavior (Adhikari et al., 2014). Respondents who answered "yes" to this question item experienced internalized stigma (Pescosolido & Martin, 2015). Respondents stated that other people around them who met them would be adversely affected. COVID-19, as an airborne disease, is one of the facts that came to the respondents' minds for this question.

The seventh question is associated with the stigma dimension of social distance or maintaining an interpersonal distance that usually occurs in patients with psychiatric disorders (Ashby, 2016). This dimension's rationale depends on the party giving the stigma, whether to accept or refuse to interact with people who have certain diseases or disabilities. Question number 13 is quite similar to question number 14. Simultaneously, these two questions have differences in the words 'ask' or 'decide for themselves.' These items' dimensions are still related to social distance, which is discussed in the seventh question. So, questions number 7, 13, and 14, especially on the word 'avoiding' or 'social distancing,' will be further explored in

the context of the stigma caused by COVID-19 because social and physical distancing is part of health protocols for the prevention of this disease. For this reason, these items will be explained in more detail in the qualitative discussion of several participants.

From the results of the interview transcript analysis, four main themes emerged, including (1) rejection, (2) feeling down and afraid, (3) sources of support, and (4) professional vigilant. These negative response to stigma is consistent with the research, which states that exposure to this virus can negatively stigmatize labels, leading to negative responsive behavior (Ashby, 2016). The study shows that 140 from 2050 Indonesian nurses have felt humiliated by others because they work as the nurse of COVID-19 patients, and 135 nurses have been asked to leave their homes (Humasfik, 2020). The forms of rejection were the threat of eviction and avoidance by closing their doors when they see the nurse. The community also stays away from the nurse's family (Humasfik, 2020). The results in this study also follow the statement that health workers at the forefront who risk their lives have experienced stigma and are socially shunned because they are in contact with COVID-19 patients and are vulnerable to experiencing discrimination (Ashby, 2016). The participant's fear is the stigma's impact. Participants feel anxious because of the conversations with colleagues and thus grow the fear of themselves and others.

The stigma's impact can increase the risk of mental disorders. As stated by Adom and Adu Mensah (2020), people affected by stigma are continually fighting the stress they experience from anxiety, depression, and fear. Stigma is a reaction to disease and cannot be avoided. Through the values expressed by the participants, those experiences provide awareness that the real opponent is the virus and not the patient of COVID-19 (Earnshaw, 2020).

Based on those themes' interpretation, participants experienced social stigma from both the work environment and community. From the rejection experienced, psychological distress appears in the form of fear and anxiety. The results show that the participants receive support from their families and people around them, and this is a steady source of support in facing their crisis period. Later, even though they experience stigma, they still carry out professional responsibilities as health workers and get the value of life. Those values include being more vigilant and maintaining self-health, and even spirituality related matters, where participants could be grateful in bad situations.

The previous study revealed that stigma is an essential predictor of burnout and compassion fatigue in health workers, so the health workers need support to deal with the stigma (Ramaci, Barattucci, Ledda, & Rapisarda, 2020). In this study, nurses receive help from other health workers, such as doctors and staff. Nurses are the largest group in the health profession. Therefore, it is essential to raise awareness to face stigma from other professionals and meet negative behavior (Ashby, 2016).

This study's limitation includes the limited number of samples representing nurses from several private hospitals in Indonesia. This study does not analyze the participant's coping mechanisms and does not measure the level of anxiety or distress. There could also be an accidental assumption in the discussion when combining quantitative data sets and qualitative data without considering each data's type and depth. The existence of a presumption in combining the two methods is a weakness of mixed methods. This study tries to initiate the scope of stigma in the COVID-19 pandemic experienced by health workers. Although it only describes the stigma conditions experienced and does not statistically measure the variables' effect or relationship, this study is meaningful. Future studies should pay more focus on this topic.

Conclusion

Stigma is an issue that needs to be controlled by the health system because it is a crisis in the health sector and can impact health workers' mental health. There comes a need to provide psychological support and prepare an effective hospital disaster plan policy to improve health workers' safety and promote mental health. The psychological support can be given in mental health services accessible to nurses, implementation of mechanisms to assess nurses' mental wellness in real-time, establish a hotline staff for any type of needs or concerns, and any other forms. Future studies obtaining the presentation of psychological distress and coping with health workers are also needed. Health workers, especially nurses and doctors, need to be supported in carrying out their roles and responsibilities, especially during a pandemic, as the frontline of patient care.

Declaration of Conflicting Interest

The authors declare no conflict of interest.

Funding

The University of Pelita Harapan funded the study with the number: 321/LPPM-UPH/VI/2020.

Acknowledgments

The researchers express thanks to the University of Pelita Harapan, Indonesia, for its funding support in this study. Special thanks go to the nurses who were voluntarily interviewed. Their honesty was essential in carrying out this study.

Authors Contribution

All authors have equal contributions in this study started from the proposal, data collection (quantitative and qualitative data), data analysis, final report, and development of the manuscript.

Data Availability Statement

The databases generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Author Biographies

Marisa Junianti Manik, MN is a Full-time Nursing Lecturer at the Faculty of Nursing, Pelita Harapan University, Indonesia.

Siska Natalia, MSN-Palliative Care is a Part-time Nursing Lecturer at the Faculty of Nursing, Pelita Harapan University, Indonesia.

Theresia, BN is a Clinical Educator at the Faculty of Nursing, Pelita Harapan University, Indonesia.

References

- Adhikari, B., Kaehler, N., Chapman, R. S., Raut, S., & Roche, P. (2014). Factors affecting perceived stigma in leprosy affected persons in western Nepal. *PLoS Neglected Tropical Disease*, 8(6), e2940. <https://doi.org/10.1371/journal.pntd.0002940>
- Adom, D., & Adu Mensah, J. (2020). The psychological distress and mental health disorders from COVID-19 stigmatization in Ghana. *Social Sciences & Humanities Open*. <http://dx.doi.org/10.2139/ssm.3589756>
- Ashby, N. J. (2016). *Student nurses, stigma and infectious diseases: A mixed methods study*. (PhD Thesis), University of Birmingham, England. Retrieved from <https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.681133>
- Bhattacharya, P., Banerjee, D., & Rao, T. S. S. (2020). The 'untold' side of COVID-19: Social stigma and its consequences in India. *Indian Journal of Psychological Medicine*, 42(4), 382-386. <https://doi.org/10.1177/0253717620935578>
- Chew, N. W. S., Lee, G. K. H., Tan, B. Y. Q., Jing, M., Goh, Y., Ngiam, N. J. H., ... Shanmugam, G. N. (2020). A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain, Behavior, and Immunity*, 88, 559-565. <https://doi.org/10.1016/j.bbi.2020.04.049>
- Chung, E. Y.-h., & Lam, G. (2018). Validation of two scales for measuring participation and perceived stigma in Chinese community-based rehabilitation programs. *Health and Quality of Life Outcomes*, 16(1), 1-12. <https://doi.org/10.1186/s12955-018-0938-3>
- COVID-19 Response Acceleration Task Force. (2020). *Pedoman penanganan cepat medis dan kesehatan masyarakat COVID-19 di Indonesia [Guidelines for rapid medical and public health handling of COVID-19 in Indonesia]*. Jakarta, Indonesia: Gugus Tugas Percepatan Penanganan COVID-19.
- Creswell, J. (2018). *Research design: Qualitative, quantitative, and mixed methods approach* (4th ed.). Los Angeles: Sage.
- De Korte, R. T., Vellacott, E. L., Pongtiku, A., Rantetampang, A. L., & Van Brakel, W. H. (2018). Neglected tropical diseases (NTD) morbidity and disability toolkit validation: A cross-sectional validation study of the EMIC-AP stigma scale for affected persons and the WHOQOL-DIS scale in Papua, Indonesia. *Leprosy Review*, 89, 219-230.
- Earnshaw, V. (2020). Do not let the fear of COVID-19 turn into a stigma. *Harvard Business Review*. Retrieved from <https://hbr.org/2020/04/dont-let-fear-of-covid-19-turn-into-stigma>
- Humasfik. (2020). Penolakan pemakaman perawat garda depan COVID-19, potret stigma sosial memilukan [The rejection of the funeral of COVID-19 vanguard nurse, a portrait of heartbreaking social stigma]. Retrieved from <https://nursing.ui.ac.id/penolakan-pemakaman-perawat-garda-depan-covid-19-potret-stigma-sosial-memilukan/>
- InfoNTD. (2020). EMIC-affected persons. Retrieved from <https://www.infonid.org/toolkits/emc-affected-persons>
- Kar, S. K., Arafat, S. M. Y., Kabir, R., Sharma, P., & Saxena, S. K. (2020). Coping with mental health challenges during COVID-19. In S. Saxena (Ed.), *Coronavirus disease 2019 (COVID-19)* (pp. 199-213). Singapore: Springer.
- Logie, C. H., & Turan, J. M. (2020). How do we balance tensions between COVID-19 public health responses and stigma mitigation? Learning from HIV research. *AIDS and Behavior*.

- 24(7), 2003-2006. <https://doi.org/10.1007/s10461-020-02856-8>
- Ministry of Health of Indonesia. (2020). *Pedoman dukungan kesehatan psikososial pada pandemic COVID-19 [Guidelines for psychosocial health support in the COVID-19 pandemic]*. Jakarta, Indonesia: Kementerian Kesehatan Republik Indonesia.
- Morgado, F. F. d. R., Silveira, E. M. K. X. d., Sales, A. M., Nascimento, L. P. R. d., Sarno, E. N., Nery, J. A. d. C., ... Ilarramendi, X. (2017). Cross-cultural adaptation of the EMIC Stigma Scale for people with leprosy in Brazil. *Revista de Saude Publica*, 51, 80. <https://doi.org/10.11606/S1518-8787.2017051000167>
- Nuraini, R. (2020). Kasus COVID-19 pertama, masyarakat jangan panik [The first case of COVID-19, people do not panic]. Retrieved from <https://indonesia.go.id/harasi/indonesia-dalam-angka/ekonomi/kasus-covid-19-pertama-masyarakat-jangan-panik>
- Pescosolido, B. A., & Martin, J. K. (2015). The stigma complex. *Annual Review of Sociology*, 41, 87-116. <https://doi.org/10.1146/annurev-soc-071312-145702>
- Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 102066. <https://doi.org/10.1016/j.ajp.2020.102066>
- Ramaci, T., Barattucci, M., Ledda, C., & Rapisarda, V. (2020). Social stigma during COVID-19 and its impact on HCWs outcomes. *Sustainability*, 12(9), 3834. <https://doi.org/10.3390/su12093834>
- Tosepu, R., Effendy, D. S., & Ahmad, L. (2020). The first confirmed cases of COVID-19 in Indonesian citizens. *Public Health of Indonesia*, 6(2), 70-71. <https://dx.doi.org/10.30685/phi.v6i2.337>
- Tosepu, R., Gunawan, J., Effendy, D. S., Hn, M. R., Muchtar, F., Sakka, A., & Indriastuti, D. (2021). Experience of healthcare workers in combatting COVID-19 in Indonesia: A descriptive qualitative study. *Beitung Nursing Journal*, 7(1), 37-42. <https://doi.org/10.33546/bnj.1251>
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, 15(3), 398-405. <https://doi.org/10.1111/nhs.12048>
- WHO. (2020a). *Social stigma associated with COVID-19*. Retrieved from <https://www.who.int/docs/default-source/coronavirus/covid19-sigma-guide.pdf>
- WHO. (2020b). WHO timeline COVID-19. Retrieved from <https://www.who.int/news-room/detail/27-04-2020-who-timeline-covid-19>
- Wibowo, A. (2020). Berbagi pesan dan pengalaman seorang perawat pasien COVID-19 [Sharing messages and experiences of a nurse taking care of COVID-19 patient]. Retrieved from <https://covid19.go.id/p/berita/berbagi-pesan-dan-pengalaman-seorang-perawat-pasien-covid19>

Cite this article as: Manik, M. J., Natalia, S., & Theresia. (2021). Social stigma towards nurses taking care of patients with COVID-19 in Indonesia: A mixed-methods study. *Beitung Nursing Journal*, 7(2), 99-108. <https://doi.org/10.33546/bnj.1322>

Knowledge and healthcare-seeking behavior of family caregivers of children with pneumonia: A qualitative study in an urban community in Indonesia

Belitung Nursing Journal
Volume 7(2), 107-112
© The Author(s) 2021
<https://doi.org/10.33546/bnj.1268>

Nyimas Heny Purwati^{1*}, Yeni Rustina², and Bambang Supriatno³

Abstract

Background: Childhood pneumonia is the leading cause of death. Family caregivers may have a poor understanding of pneumonia, especially related to prevention and treatment. It is crucial to understand country-specific knowledge and healthcare-seeking behaviors of caregivers of children with pneumonia before planning programmatic responses, particularly in an urban community where the culture-social economic status is diverse.

Objective: This study aimed to describe the knowledge and healthcare-seeking behavior of family caregivers of children with pneumonia in Indonesia's urban community.

Methods: A descriptive qualitative study was conducted at a public hospital in Jakarta, Indonesia, from 10 December 2019 to 28 January 2020. Ten family caregivers of children with pneumonia were included, and a semi-structured interview was conducted for data collection. The audio recording was transcribed verbatim, and the data were analyzed using content analysis.

Results: The emerged data indicated low knowledge of the family caregivers, especially mothers, which considered pneumonia a common cold only, and they failed to understand the risk of its transmission. Using traditional medicines was the first stage of healthcare-seeking behavior. If the symptoms worsened, the caregivers brought their children to the nearest health center. If there was no change in the symptoms, they headed to the hospital. The health center's location, condition, services, and staff attitude were considered factors to choose the services.

Conclusion: Living in an urban area does not guarantee the family caregivers have better knowledge and good healthcare-seeking behavior. Therefore, nurses should provide comprehensive education about pneumonia, its symptoms, and treatment management to improve family care and prevent pneumonia-related deaths. Integrated management of children with illness is recommended to help the family caregivers of children with pneumonia receive treatment as quickly as possible.

Keywords

caregivers; healthcare-seeking behavior; mothers; knowledge; common cold; pneumonia; nursing; Indonesia

Pneumonia is the leading infectious cause of death among children under five; about 2,400 children die every day (UNICEF, 2016). In 2016, Indonesia ranked as the sixth-highest number of pneumonia in the world (Ministry of

Health, 2017). Unlike in other countries in Southeast Asia, the number of under-five deaths caused by pneumonia increases about 0.12% from 2016 to 2017 (Ministry of Health, 2017). High mortality due to pneumonia is

¹Faculty of Nursing, Universitas Muhammadiyah Jakarta, Jakarta, Indonesia

²Faculty of Nursing, Universitas Indonesia, Jakarta, Indonesia

³Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia

Corresponding author:

Ns. Nyimas Heny Purwati, M.Kep., Sp.Kep.An

Faculty of Nursing, Universitas Muhammadiyah Jakarta
Jl. Camp. Putih Tengah I No.1, RT.11/RW.5, Camp. Putih Tim.
Kec. Camp. Putih, Kota Jakarta Pusat, Jakarta, Indonesia 10510
E-mail: nyimas.heny@umj.ac.id

Article Info:

Received: 11 December 2020

Revised: 4 January 2021

Accepted: 25 March 2021

This is an **Open Access** article distributed under the terms of the **Creative Commons Attribution-NonCommercial 4.0 International License**, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

associated with malnutrition, poor sanitation, air pollution, and lack of access to health care facilities (UNICEF, 2016). The Indonesian government provides integrated childhood illness management but only 60% of children receiving appropriate care from the public health centers (Ministry of Health, 2015).

Family is critical in treating pneumonia in children, as they cannot take care of themselves. Their main problems were high levels of stress, anxiety, adverse family environment, and financial hardship (Pahlavanzadeh, Mousavi, & Maghsoudi, 2018). Also, poor coping skills and a lack of social support have contributed to the child's health issues (Le Roux & Zar, 2017). A previous systematic review has shown a significant association between the role of the family caregiver and the readmittance (McLeod-Sordjan, Krajewski, Jean-Baptiste, Barone, & Worral, 2011). Therefore, ensuring family caregivers' knowledge and behavior in health care is very important in providing appropriate care for children.

Previous studies reported that family caregivers, particularly mothers, have inadequate knowledge about the etiology and symptoms of pneumonia, and many of them treat their children with pneumonia as a common cold and provide the children with traditional medicine to solve one of the symptoms, such as cough or fever that could be a reason for delay treatment (Abbey, Chinbuah, Gyapong, Bartholomew, & van den Borne, 2016; Ndu et al., 2015). A study conducted in six sub-Saharan African Countries reported that only 30% of caregivers were aware of at least one of the two pneumonia symptoms (i.e., fast or difficulty breathing) (Noordam, Carvajal-Velez, Sharkey, Young, & Cals, 2015). Additionally, household wealth-status, maternal and paternal education, and religion were associated with the inequality in the use of child health services (Ayaleh, Fetene, & Lee, 2017; Noordam et al., 2015).

Pneumonia in An Urban Community in Indonesia

In Indonesia, pneumonia, together with diarrhea, is the leading cause of death for children under five. Based on the diagnosis, the prevalence of pneumonia in 2018 was 2%, while in 2013, it was 1.8%. From 2015-2018 confirmed pneumonia cases in children under five years increased by about 500,000 per year. In Jakarta in 2018, 42,305 children under five were found and treated with a diagnosis of pneumonia, approximately 95.53 percent of the 44,285 children under five who are estimated to be sufferers spread across six districts/cities (Ministry of Health, 2018).

Jakarta is included in the metropolitan city, or urban area, which is also the capital of Indonesia. Jakarta is the second-most populous urban area globally, after Tokyo, and covers 6,392 square kilometers. It has a population of around 35,934 million by 2020 (it occupies 6,392 kilometers square (2,468 sq mi). Pneumonia is a lung infection caused by bacteria, fungi, and viruses. The disease is often called a multifactorial disease. Apart from the condition, cleanliness and population density in residence also affect the proliferation of the disease (Ministry of Health, 2015).

While population density is very crowded, that potential to be one of the significant risks for the rising factors of pneumonia. Jakarta has many of the best public and private health facilities (National Statistics Center, 2020). However, people living in Jakarta are diverse. They came from around the province in Indonesia with different socio-economic statuses. Therefore, it is crucial to understand country-specific understanding and health care-seeking behaviors for children with pneumonia before planning programmatic responses, particularly in an urban community where the culture-social economic status is diverse. Also, the family caregiver may have a poor understanding of pneumonia, especially related to prevention and treatment. This study was conducted to explore the knowledge and healthcare-seeking behaviors of family caregivers of children with pneumonia in Indonesia's urban community.

Methods

Study Design and Participants

This descriptive qualitative study involved family caregivers of children with pneumonia referred to a general public hospital in Jakarta, Indonesia. Participants were selected using purposive sampling. The inclusion criteria were mothers or primary caregivers of a child with pneumonia under five years of age, able to communicate verbally, and not having any addictions, and not using any psychological drugs. A total of ten participants were recruited. According to Colvin et al. (2013), at least three to ten participants are recruited in qualitative research. The participants were recruited during children's clinical visits, and a head nurse provided the name lists of the potential participants.

Data Collection

This study was conducted at a general public hospital in Jakarta, Indonesia, from 10 December 2019 to 28 January 2020. The primary method of data collection was semi-structured interviews with open questions. Interviews were conducted in a private and quiet room individually as schedule with the participants. At the beginning of the interview, an introduction conversation was conducted to explain and obtain written consent and build trust with participants. After obtained approval from the participants, the researcher and participants made an appointment for an interview. The interviews were recorded with permission from the participants. The interview began with questions, "How long did your child get sick?" "Could you describe the symptoms complained by your child?". After receiving the answers to the above questions, exploratory and in-depth questions, such as "Could you explain what you have done to help your child recovery?" were asked by the researcher and continued until no new data were described or the same things were repeatedly explained. The mean duration of the interviews was 30 to 45 minutes. All of the interviews were conducted by one person (NHP). The interview was audio recorded.

Data Analysis

Data were analyzed using content analysis (Creswell, 2012). In qualitative research, data analysis involves planning and organizing data (such as transcripts or photographs), followed by reducing the data into themes through coding and condensing the codes. Data are presented in figures, charts, or a discussion. In this study, the interviews were transcribed verbatim and reviewed every word to extract the codes. Then the codes were categorized into general topics. Based on their similarities, codes were put into the classified themes.

Trustworthiness/Rigor

Several evaluation methods were used to ensure the reliability and accuracy of the study. Responses were confirmed by subjects (member check) and experts (external check by a nursing expert in a qualitative study with a doctoral degree). To measure the fittingness, the results were shared with family caregivers of children with pneumonia who did not join this study, and they were agreed with the fittingness of data. Some of the observers examined the study findings and agreed that the data collection methodology was appropriate. To ensure the conformity and consistency of the study, the researcher also correctly documented the whole analysis process to allow others to follow.

Ethical Consideration

Ethical permission was obtained prior to data collection from the Institutional Review Board of the Universitas Muhammadiyah Jakarta, Jakarta, Indonesia (approval number: 078/III/UMJ/2019) and the studied hospital. Each participant was asked to sign a written informed consent prior to data collection, and they could withdraw from the study without any penalty.

Results

Characteristics of the Participants

The average age of the participants was 26.57 years old, with a standard deviation of 2.34. All of the participants in this study were mothers of children with pneumonia, and the onset of a child's disease was between the age of one and four years. Of all participants, the majority of their educational level was senior high school. The duration of the children having the disease ranged between 12 and 20 days.

Analytical Findings

The findings of this study emerged from data representing knowledge and healthcare-seeking behavior of family caregivers of children with pneumonia (Table 1).

Theme 1: Knowledge of pneumonia

Just a common cold

The family's knowledge about pneumonia experienced by their children in this study was considered low. The majority of the participants perceived that the illness experienced by

their children as a common cold, as described by the participants:

- "What I know, my child is sick of a common cold" (P2)
- "I do not really know, but my child has a cold cough and must be treated" (P3)

Also, although several triggers of pneumonia symptoms were identified by some participants, such as drinking too much ice, being exposed to cigarette smoke, and not having time to play, and eating too much, along with different combinations of external influences, some participants did not recognize the conditions that triggered the symptoms. It is described by the participants:

- "I certainly don't know, but my child likes to eat a snack, likes drinking ice, eating is difficult. There is no coughing at home" (P2)
- "My husband smoked, sometimes he smoked near his son, sometimes outside too. Sometimes the windows at home are opened if the heat is opened" (P2)

Risk of transmission

While their children got sick, the parents and children did not provide or use a mask to prevent the transmission. It is described by the participants:

- "My kid is usually cheerful. Now he is sick, and does not want to play. He just wants to be held all the time" (without using a mask seen from the observation") (P5)
- "During the sickness, she only played in bed, no mask. She kept silent, looked soft, not cheerful" (P8)

Theme 2: Healthcare-seeking behavior

The healthcare-seeking behaviors of the family for their children with pneumonia could be seen in the two following subthemes:

Using traditional medicines

The majority of the participants used traditional medicines to take care of their children at home, such as using a red onion, hot water, and saga leaves. This is usually based on their previous experience and suggestions from other family members. This is explained in the following statements:

- "My father-in-law uses hot water using eucalyptus or scraped using onions so can help the body getting warm or hot" (P1)
- "I gave herbal first such as saga leaves to reduce cough" (P2)

The nearest health center first, hospital second

The majority of the participants preferred to bring the children to the nearest public health center or clinic than the hospital if traditional medicines are not effective. The location, condition, services, and staff attitude have become the factors of choosing health care services, as stated in the following statement:

- "Immediately, I took my kid to the public health center if there was an emergency at home, or if traditional medicine is not working" (P4)
- "I bring my kid to the clinic or public health center first, then if it cannot guarantee recovery, I bring to the hospital" (P8)
- "It's even better service in a good public health center. Sometimes the nurses are friendly, and some are not. In the hospital, there are many people" (P2 & P3)

Table 1 Themes and subthemes of knowledge and health care seeking behaviors of family caregivers of children with pneumonia

Themes	Subthemes
Knowledge of pneumonia	<ul style="list-style-type: none"> • Just a common cold • Risk of transmission
Healthcare-seeking behavior	<ul style="list-style-type: none"> • Using traditional medicines • The nearest health center first, hospital second

Discussion

This study found that most of the family caregivers considered pneumonia as a common cold. They did not know the symptoms of pneumonia correctly, even dangerous symptoms, and also a condition that might trigger symptoms became more severe. It is similar to previous research conducted in Africa, Uganda, and Thailand to more than four hundred mothers and caregivers of children with pneumonia reported their knowledge of causes, symptoms, and danger signs of pneumonia were poor (Ndu et al., 2015; Tuhabwe, Tumushabe, Leontsini, & Wanyenze, 2014). Parents perceive the symptoms are ordinary and harmless so they can treat themselves (Ferdous et al., 2014; Pajuelo et al., 2018). However, proper knowledge of pneumonia, including its dangerous symptoms, is essential to prevent death from pneumonia (Ferdous et al., 2014). Therefore, increasing health education to society in Indonesia about pneumonia is very important using a more comprehensive approach.

In our study, it has been shown that the majority of the family preferred the traditional way to take care of their sick children, such as scraping with red onion and other traditional medicines. They chose to deal directly with the disease based on their previous knowledge of child-related symptoms. If the symptoms worsened, the parent brought their children to the first or primary healthcare center. And finally, if the symptoms were no better, they headed to the hospital. The existence of a spiritual belief in the prohibition of the use of medical treatment has led to the emergence of traditional healing practices (Bedford & Sharkey, 2014; Colvin et al., 2013). Another reason is parents' mistrust of the health-care system, which they believe is not providing proper care for their children, as well as the poor standard of service provided by government hospitals and a shortage of qualified staff (Colvin et al., 2013; Ferdous et al., 2014; Pajuelo et al., 2018). Delays in obtaining

appropriate treatment occur when health service providers, especially at the primary care level, are unable to provide the right diagnosis and treatment.

Care-seeking is one of the keys to managing children with pneumonia. According to a previous study, the average parent delay in seeking treatment for children with pneumonia ranges from three to 14 days after the onset of symptoms in children, especially fever and cough (Pajuelo et al., 2018). The primary reason for the delay in the treatment of children with pneumonia was a spiritual belief, low quality of service in government hospitals, lack of professionally qualified staff (Colvin et al., 2013; Ferdous et al., 2014; Noordam et al., 2015; Pajuelo et al., 2018). Parents perceived that symptoms appear to be common and not dangerous so that they can be self-resolved or treated on their own. If the condition does not improve, the child comes to health care at an advanced stage of the disease (Ferdous et al., 2014; Pajuelo et al., 2018). The previous study has shown that the lack of knowledge of the mother regarding signs and symptoms and the severity of the disease has resulted in ineffective treatment, i.e., either delayed treatment or unnecessary treatment (Ferdous et al., 2014).

The findings of this study indicated that a program to help parents of children with pneumonia receive treatment as soon as possible is needed through integrated management of children with illness. Nurses, especially family nurses and pediatric nurses, should provide information and education to parents about home care and ensure urgent follow-up in general practice clinics or outpatient care. The primary health education subjects are mothers and child caregivers, while secondary subjects are health workers, decision-makers, and other related sectors. However, health promotion aims to ensure that people adopt behaviors that comply with health requirements.

The study was limited to the individual differences that could have influenced caregivers' pursuing behavior between religious, moral, social, cultural, and mental beliefs. To an extent, this would compensate for the inequality in ability levels between the participants. The study's limitations were also more directed towards collecting data concerning the availability of the patients under five years of age. In general, children treated with pneumonia are infants and are accompanied by other comorbidities such as congenital heart disease and malnutrition. During the interview, distraction sometimes occurred because the child was mischievous, mainly if left behind, so that data might not be optimally collected. Finally, a follow-up interview must be conducted at the patient's home.

Conclusion

This study found that the family caregivers had insufficient knowledge of pneumonia and its symptoms even though living in the urban area. They considered pneumonia the same as a common cold. Thus, this condition affected their

healthcare-seeking behaviors, in which many of the family preferred to apply traditional ways in caring for their children with pneumonia. Therefore, it is crucial for nurses, especially pediatric nurses or family nurses, to provide comprehensive and continuous education about pneumonia, its symptoms, and treatment management to enhance the family caregivers' healthcare-seeking behavior and prevent death caused by pneumonia. Our study highlights the need for more serious efforts to increase the knowledge about pneumonia in primary and other health services levels. This new information could contribute to new conceptualizations or question existing ones; it could provide data that could improve practice. Future studies exploring other potential factors that may contribute to the caregivers' knowledge and barrier to provide care for their children with pneumonia are essential.

Declaration of Conflicting Interest

All authors declare no conflict of interest.

Acknowledgment

We thank all participants for joining this study.

Funding

This study was funded by Universitas Muhammadiyah Jakarta, Indonesia.

Authors' Contribution

NHP contributed to all the study steps, including data collection, data analysis, data interpretation, drafted and critically revised the article. YP and BS contributed to data analysis and interpretation, wrote and revised the paper critically. All authors agreed with the final version of the manuscript.

Data Availability Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' Biographies

Ns. Nyimas Heny Purwati, M.Kep., Sp.Kep.An is a Lecturer at the Faculty of Nursing, Universitas Muhammadiyah Jakarta, Indonesia.

Yeni Rustina, S. Kp., M.App.Sc., Ph.D is a Professor at the Faculty of Nursing, Universitas Indonesia, Indonesia.

DR. dr. Bambang Supriatno, Sp. A(K) is a Professor at the Faculty of Medicine, Universitas Indonesia, Indonesia.

References

- Abbey, M., Chinbuah, M. A., Gyapong, M., Bartholomew, L. K., & van den Borne, B. (2016). Community perceptions and practices of treatment seeking for childhood pneumonia: A mixed methods study in a rural district, Ghana. *BMC Public Health*, 16(1), 848. <https://doi.org/10.1186/s12889-016-3513-z>
- Ayalneh, A. A., Fetene, D. M., & Lee, T. J. (2017). Inequalities in health care utilization for common childhood illnesses in Ethiopia: Evidence from the 2011 Ethiopian Demographic and Health Survey. *International Journal for Equity in Health*, 16(1), 1-9. <https://doi.org/10.1186/s12939-017-0561-7>
- Bedford, K. J. A., & Sharkey, A. B. (2014). Local barriers and solutions to improve care-seeking for childhood pneumonia, diarrhoea and malaria in Kenya, Nigeria and Niger: A qualitative study. *PloS One*, 9(6), e100038.
- Colvin, C. J., Smith, H. J., Swartz, A., Ahs, J. W., de Heer, J., Opiyo, N., ... George, A. (2013). Understanding careseeking for child illness in sub-Saharan Africa: A systematic review and conceptual framework based on qualitative research of household recognition and response to child diarrhoea, pneumonia and malaria. *Social Science & Medicine*, 86, 66-78. <https://doi.org/10.1016/j.socscimed.2013.02.031>
- Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). UK: SAGE Publications.
- Ferdous, F., Dil Farzana, F., Ahmed, S., Das, S. K., Malek, M. A., Das, J., ... Chisti, M. J. (2014). Mothers' perception and healthcare seeking behavior of pneumonia children in rural Bangladesh. *ISRN Family Medicine*, 2014. <http://dx.doi.org/10.1155/2014/690315>
- Le Roux, D. M., & Zar, H. J. (2017). Community-acquired pneumonia in children—a changing spectrum of disease. *Pediatric Radiology*, 47(11), 1392-1398. <https://doi.org/10.1007/s00247-017-3827-8>
- McLeod-Sordjan, R., Krajewski, B., Jean-Baptiste, P., Barone, J., & Worral, P. (2011). Effectiveness of patient-caregiver dyad discharge interventions on hospital readmissions of elderly patients with community acquired pneumonia: A systematic review. *JBI Evidence Synthesis*, 9(14), 437-463. <https://doi.org/10.11124/jbisnr-2011-127>
- Ministry of Health. (2015). *Indonesia health profile 2015*. Retrieved from <https://pusdatin.kemkes.go.id/article/view/16091600001/profil-kesehatan-indonesia-tahun-2015.html>
- Ministry of Health. (2017). *Indonesia health profile 2017*. Retrieved from <http://www.depkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/indonesia-health-profile-2017.pdf>
- Ministry of Health. (2018). *Basic health research*. Retrieved from http://labdata.litbang.kemkes.go.id/images/download/laporan/RKD2018/Laporan_Nasional_RKD2018_FINAL.pdf
- National Statistics Center. (2020). Pneumonia cases. Retrieved from <https://www.bps.go.id/indicator/30/42/2/jumlah-kasus-penyakit.html>
- Ndu, I. K., Ekwochi, U., Osuorah, C. D. I., Onah, K. S., Obuocha, E., Odetunde, O. I., ... Amadi, O. F. (2015). Danger signs of childhood pneumonia: Caregiver awareness and care seeking behavior in a developing country. *International Journal of Pediatrics*, 2015, 167261. <https://doi.org/10.1155/2015/167261>
- Noordam, A. C., Carvajal-Velez, L., Sharkey, A. B., Young, M., & Cals, J. W. L. (2015). Care seeking behaviour for children with suspected pneumonia in countries in sub-Saharan Africa with high pneumonia mortality. *PloS One*, 10(2), e0117919. <https://doi.org/10.1371/journal.pone.0117919>
- Pahlavanzadeh, S., Mousavi, S., & Maghsoudi, J. (2018). Exploring the needs of family caregivers of children with attention deficit hyperactivity disorder: A qualitative study. *Iranian Journal of Nursing and Midwifery Research*, 23(2), 149. https://doi.org/10.4103/ijnmr.IJNMR_16_17
- Pajuelo, M. J., Huaynate, C. A., Correa, M., Malpartida, H. M., Asayag, C. R., Seminario, J. R., ... Paz-Soldan, V. A. (2018). Delays in seeking and receiving health care services for pneumonia in children under five in the Peruvian Amazon: A mixed-methods study on caregivers' perceptions. *BMC Health Services Research*, 18(1), 1-11. <https://doi.org/10.1186/s12913-018-2950-z>
- Tuhehwe, D., Tumushabe, E., Leontsini, E., & Wanyenze, R. K. (2014). Pneumonia among children under five in Uganda: Symptom recognition and actions taken by caretakers. *African*

Health Sciences, 14(4), 993-1000. <https://doi.org/10.4314/ahs.v14i4.31>

UNICEF. (2016). *The state of the world's children 2016*. Retrieved from <https://www.unicef.org/reports/state-worlds-children-2016>

Cite this article as: Purwati, N. H., Rustina, Y., & Supriyatno, B. (2021). Knowledge and healthcare-seeking behavior of family caregivers of children with pneumonia: A qualitative study in an urban community in Indonesia. *Belitung Nursing Journal*, 7(2), 107-112. <https://doi.org/10.33546/bnj.1268>

Nursing handover in the Indonesian hospital context: Structure, process, and barriers

Belitung Nursing Journal
Volume 7(2), 113-117
© The Author(s) 2021
<https://doi.org/10.33546/bnj.1293>

Krisna Yetti[✉], Nani Asna Dewi[✉], Sri Herni Wigiarti[✉], and Dina Warashati[✉]

Abstract

Background: Nursing handover is an essential part of nursing practice to safe patient care, which occurs among nurses between shifts for transferring professional responsibility and accountability. However, there is limited information about the implementation and evaluation of nursing handover in Indonesian hospitals.

Objective: This study aimed to describe the structures, processes, and barriers of the nursing handover in the Indonesian hospital context.

Methods: This study employed a case study design in five inpatient units, especially in the medical-surgical wards of a referral hospital in Indonesia. The study was conducted from August to November 2018. A total of 100 handovers and 76 nurses were included. Focus group discussions were conducted in head nurses, nurse team leaders, and registered nurses. Observations were implemented to capture the handover process, including the number of the nurses in and out and the content of the information covered situation, background, assessment, and recommendations (SBAR). Data were analyzed using content analysis and fishbone analysis.

Results: The nursing handover consisted of three phases: before, during, and after. The handover barriers were divided into manpower, material, money, method, environment, and machine. The content of handover varied according to nurses' familiarity with the patients and their complexity. The nurses also actively participated during the handover process, although some nurses were absent in the handover time. About 75% of nurses had sufficient knowledge about the shift handover process using SBAR. The SBAR was adopted as a standard for handover, but no specific guideline or standard operating procedure.

Conclusion: The results of this study can be used as basic information to develop a guideline of nursing handover and supervision in the context of hospitals in Indonesia and beyond.

Keywords

case study; clinical handover; nursing handover; patient handoff; Indonesia; hospital

Nursing handover plays a vital role in patient care continuity to ensure the quality of care and patients' safety (Australian Commission on Safety and Quality in Healthcare, 2011). Handover is a routine process that usually occurs two to three times a day in most hospitals (Chaboyer et al., 2010; McMurray et al., 2011). It is designed for transferring care, including information about the patient's condition, treatment plan, and intervention priority (Kilic et al., 2017). According to the national hospital accreditation standards in 2018, handover is one way to improve the patient's safety. Thus, health care

professionals need to increase effective communication. Joint Commission International (JCI) recommends developing and implementing handover processes among health care professionals (Hospital Accreditation Commission, 2017). However, on some occasions, due to the high workload, the handover process becomes a burden for nurses, which leads to the miscommunication of the patients' care (Spooner et al., 2018). Therefore, effective communication is essential to provide accurate and complete information and avoid unexpected outcomes (Spooner et al., 2018).

Faculty of Nursing, Universitas Indonesia, Indonesia

Corresponding author:

Dr. Krisna Yetti, S.Kp., M.App.Sc

Faculty of Nursing, Universitas Indonesia

Jl. Prof. DR. Sudjono D. Pusponegoro, Kikusan, Kecamatan Beji,

Kota Depok, Jawa Barat 16425, Indonesia

E-mail: krisna@ui.ac.id

Article Info:

Received: 30 January 2021

Revised: 22 February 2021

Accepted: 24 March 2021

This is an **Open Access** article distributed under the terms of the **Creative Commons Attribution-NonCommercial 4.0 International License**, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-151X

There are four critical indicators considered on an excellent handover process in many Indonesian hospitals: timeliness, communication patterns, SBAR (situation, background, assessment, recommendations), leadership, and documentation (Herawati et al., 2018; Tobiano et al., 2018). These four things are assessed every month and recapitulated by the nursing department for monitoring and evaluation. SBAR technique has helped nurses to interact in a centered and easy manner during the transition of treatment (Achrekar et al., 2016). This model of interaction has gained popularity in healthcare settings, especially among professionals like the nursing staff. It is a way to communicate easily with each other for health care professionals and allows for efficient sharing of important information. Using standardized SBAR for bedside change handover in nursing practice would improve communication between nurses and ensure patient safety (Achrekar et al., 2016). SBAR format allows for the quick, structured, and consistent stream of professional knowledge (Thomas et al., 2009). SBAR technique's primary purpose is to improve interaction efficiency by standardizing the communication system. Although handover is a common issue, the information about implementation and evaluation is limited. Therefore, this study aimed to describe the structure, process, and barrier of nursing handover in the Indonesian hospital context.

Methods

Study Design

This study employed a case study design in five inpatient units, especially in the medical-surgical wards of a referral hospital in Indonesia. The case study was chosen as an appropriate methodological approach to conduct an active investigation limited by place and time (Yin, 2003). In the case study, we asked questions about what, why, and how to analyze current, real-life situations with all their complexity (Kyburz-Graber, 2004).

Participants

The study was carried out on adults' medical-surgical wards for neurological, oncology, and general surgical cases from August to November 2018. Each unit mainly consisted of four to six beds. A team and primary nursing were used as nursing care delivery models. Each unit has one team led by one head nurse, primary and associate nurses. This study participants were nurse managers, nursing staff, team leaders (those in charge of patient groups and nursing staff), and shift coordinators (who took overall responsibility for the ward operations).

Data Collection

This study used two data collection forms; observation and semi-structured focus group discussion (FGD). Due to reduced personnel during handover periods, we only included afternoon shift-to-shift handover, but the FGDs included all nursing staff, nurse team leaders, and nursing managers. We conducted observations guided by a data

collection form. We recorded the handover process, including a number of the nurses in and out, the content of the information covered situation, background, assessment, and recommendations (SBAR) (Halg et al., 2006). When nurses asked questions or made statements about the current conditions in the handover process, they were deemed to be actively involved in the handover process. We were not considering passive participants if they only made insignificant comments like just say 'OK'. Nurses were deemed not to be involved in the handover when there was no contact between nurses during the handover.

The participants were selected using a purposive sampling that involved nursing staff, nursing managers, and nurses team leaders. The focus group discussion was divided into five groups (one group from each ward). Questions were about structure, process, and barriers related to the handover, such as "how do you prepare handover?", "What do you do in the handover process?", and continued until there was no more new information.

Data Analysis

Data were analyzed through iterative review by all the research team members, which recursively examined the interview data, searching for similarities in the views of respondents and across the six cases using constant comparison. Similar ideas were then organized into categories of structures and processes. Structures involved physical and institutional properties, procedures done, and the results achieved. Assessing the quality of the handover process was undertaken by appraising and linking structures and processes with outcomes, assuming that structures influence processes, affecting outcomes. A fishbone analysis including man, method, machine, material, money, and environment was used as a framework to obtain barriers of nursing during handover.

Trustworthiness

A different technique was used to ensure the trustworthiness of this study. Credibility was achieved through detailed group discussions. Reliability was gained through the separate analysis of the transcript by three co-authors. The team then confronted and discussed the findings before an agreement on code, category, sub-theme, and theme had been attained. Transferability was demonstrated using semi-structured FGD sessions to reflect differences in specific populations and the appropriate quotations collected.

Ethical Consideration

The studied hospital's ethical committee has approved this study (No. DM 01.01 / VIII.2 / 1359/2019). Participants were informed that the collected information would be kept confidential. All participants were provided a written informed consent to participate in this study. They had the right to withdraw from the study at any time without giving reasons or any penalties.

Results

A total of 100 handovers process were observed in five wards, and 76 nurses were interviewed. The majority of interviewees were males, graduated with a bachelor degree with a professional program with age ranged from 25 to 55 years old. The majority of the participants had been working for more than two years. About 75% of nurses had sufficient knowledge about the shift handover process using situation, background, assessment, and recommendations (SBAR).

The results from the observation focused on addressing the handover process. The handover occurred in the nurse's station, and the one who started to transfer information was the outgoing staff. Oncoming staff is a

leader to document all information and write it in an official book. While each nurse made their notes about patients' condition and treatment plan. The handover structures were generally occurred between the team, not as a whole of ward handover. Situation, background, assessment, and recommendations (SBAR) were used in varying degrees of handover ranged from 55% to 85%. The nurses also actively participated during the handover process, although some nurses were absent in the handover time. The time for handover in the afternoon usually started from 14:00 to 15:00 West Indonesian Time (WIB), and the night shift began at 20:30 until 21:00, and in the morning shift started from 7:00 to 08:00 clock. Approximately four to five people were present at the handover process, including the team leader of the outgoing shift and all three team members of the oncoming shift.

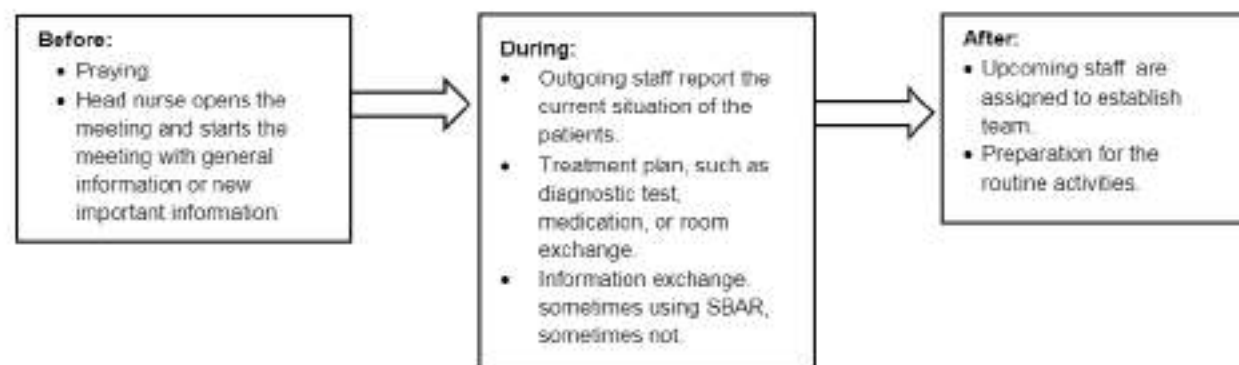


Figure 1 Handover process

Figure 1 describes the handover process in the studied hospital. There were three stages in the handover process: before, during, and after. Before the handover, the off-going nurses in charge of providing direct care to patients were prepared some notes or documents to report. The unique thing is that they started the process by firstly praying according to each religion, and then, the head nurse opened and started the meeting. The first meeting discussed new importation or reminded something, such as hand hygiene technique or updated information related to nursing interventions. During the handover, the outgoing staff reports the patients' current situation, treatment plan, and other issues. The content of handover varied according to nurses' familiarity with the patients and their complexities. After the handover finished, the upcoming nurses discussed job allocation and prepared to do routine activities.

The results of focus group discussion were used to explore the barriers that commonly happened during handover. Figure 2 illustrates the fishbone analysis used to describe the barriers divided into manpower, material, money, method, environment, and machine. From the viewpoint of the human resources, the barriers included adherence of nurses in the handover process, lack of mentoring from head nurses, and less participation. As stated by nurses in the FGD as follows: "... sometimes I

was confused how to share the information because it's a routine activity, and I know what I have to do even though I am an off-going nurse..." AND "...I listen to the information only from the outgoing nurses, especially the instruction from the medical doctor or others."

From the material point, there was a guideline for supervision of handover. But the documentation using SBAR was not well implemented due to the items were not completely clear. The nurses state this in FGD: "...I know SBAR, sometimes I wrote completely, sometimes not, it depends on the available time..." AND "...I don't know whether what I wrote in documentation is correct or not, or follow the correct SBAR guideline."

Furthermore, lack of reward and unsupported environment were the other barriers of nursing handover.

Discussion

Our study shows a complex nursing handover process that involved management policy, environmental, and human resources. We found that the majority of nurses had sufficient knowledge about SBAR. Although SBAR was recommended to use during handover, the comprehensive information and communication direction was unclear. SBAR is a rigid handover structure that could transfer information objectively in a standard format (Haig et al.,

2006). Interestingly, although the nurses adopted SBAR, no updated guideline or standard operating procedure about the handover; therefore, it is essential to evaluate the implementation of the handover process using SBAR consistently. A previous study suggested that prioritizing transferred information is important to help oncoming nurses to get information quickly and minimize overload information and time-consuming during handover (Patterson, 2008). Also, less use of current technology was applied during handover. Consequently, the documentation process has become a burden due to the time-consuming to write a complete story of the patients. Policymakers may consider using technology to reduce the time for documentation.

In this study, nurses showed active participation during the handover process, including making a decision, although some nurses were absent. One of the problems from the managerial aspect was less supervision to

monitor the quality of the handover process. Empowerment is required in nursing care to perform nursing care to achieve nursing goals by considering patient safety, using critical thinking skills, and making effective communication (Pulvirenti et al., 2014). All nurses need to share the knowledge about a patient during the handover period and at the same time know that the others do know it. During handover, nurses' empowerment is crucial because good empowerment can help achieve the hospital's goal to provide excellent service (Laschinger et al., 2014). A study suggested that top management is expected to have involvement and commitment to improving and facilitating handover according to standards (Berker & Ganti, 1980). Continuous education for nurses regarding handover is imperative to update the new information and maintain the process comprehensively and correctly.

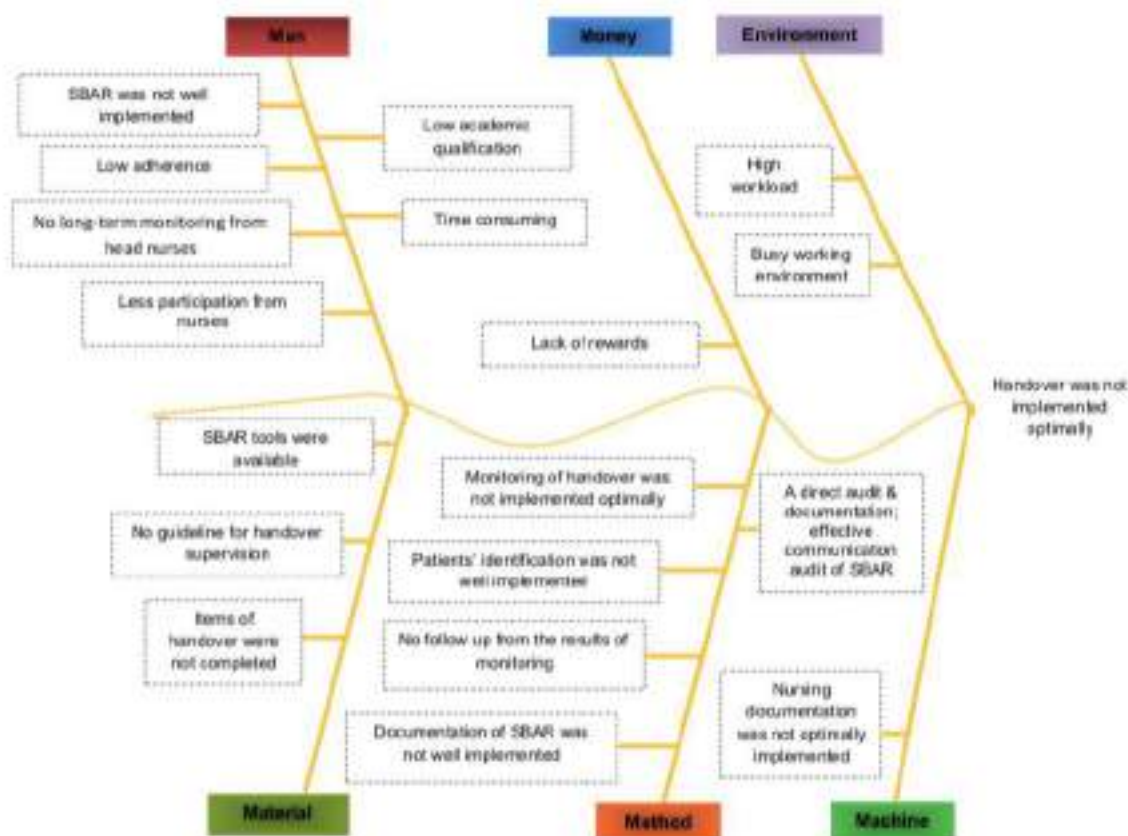


Figure 2 Fishbone diagram of nursing handover barriers

Conclusion

In conclusion, this case study provided the process and structure of handover and barriers that commonly happened during handover. This information can be used as basic information to develop or update guidelines or standard operating procedures of the handover for comprehensive implementation. Importantly, policymakers

need to design an effective system and environment to overcome problems in the handover, such as using electronic documentation, providing a complete sheet as a guideline for handover, providing rewards and adequate supervision. The development of continuous education programs for nurses is also needed to update the handover information and maintain handover quality.

Declaration of Conflicting Interest

All authors declare no conflict of interest.

Acknowledgment

Thanks to all nurses who participated in this study.

Funding

This study was funded by the Department of Nursing, Universitas Indonesia, Indonesia.

Authors' Contribution

KT, NAD, SHW, and DW contributed equally in data collection, data analysis, data interpretation, drafted article, and critically revised the article. All authors agreed with the final version of the manuscript.

Data Availability Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' Biographies

Dr. Krisna Yetti, S.Kp., M.App.Sc is a Lecturer at the Faculty of Nursing, Universitas Indonesia, Indonesia.

Nani Asna Dewi, Sri Herni Wigiarti, and Dina Warashati are graduate students at the Faculty of Nursing, Universitas Indonesia, Indonesia.

References

- Achrekar, M. S., Murthy, V., Kanan, S., Shetty, R., Nair, M., & Khattry, N. (2016). Introduction of situation, background, assessment, recommendation into nursing practice: A prospective study. *Asia-Pacific Journal of Oncology Nursing*, 3(1), 45. <https://doi.org/10.4103/2347-5625.178171>
- Australian Commission on Safety and Quality in Healthcare. (2011). *External evaluation of the national clinical handover initiative pilot program*. Sydney: Australian Commission on Safety and Quality in Healthcare.
- Barker, M., & Ganti, A. R. (1980). An in-depth study of the head nurse role. *Supervisor Nurse*, 11(11), 16-21.
- Chaboyer, W., McMurray, A., & Wallis, M. (2010). Bedside nursing handover: A case study. *International Journal of Nursing Practice*, 16(1), 27-34. <https://doi.org/10.1111/j.1440-172X.2009.01809.x>
- Haig, K. M., Sutton, S., & Whittington, J. (2006). SBAR: A shared mental model for improving communication between clinicians. *The Joint Commission Journal on Quality and Patient Safety*, 32(3), 167-175. [https://doi.org/10.1016/S1553-7250\(06\)32022-3](https://doi.org/10.1016/S1553-7250(06)32022-3)
- Herawati, V. D., Nurmala, D., Hartiti, T., & Dwianto, L. (2018). The effectiveness of coaching using sbar (situation, background, assessment, recommendation) communication tool on nursing shift handovers. *Belitung Nursing Journal*, 4(2), 177-185. <https://doi.org/10.33546/bnj.464>

Hospital Accreditation Commission. (2017). *National standard of hospital accreditation*. Jakarta: Hospital Accreditation Commission.

Kilis, S. P., Nimet Oveyolu, R. N., Ozlem Oveyolu, R. N., & Ozturk, M. H. (2017). The approaches and attitudes of nurses on clinical handover. *International Journal of Caring Sciences*, 10(1), 136-145.

Kyburz-Graber, R. (2004). Does case-study methodology lack rigour? The need for quality criteria for sound case-study research, as illustrated by a recent case in secondary and higher education. *Environmental Education Research*, 10(1), 53-65. <https://doi.org/10.1080/1350462032000173706>

Laschinger, H. K. S., Nosko, A., Wilk, P., & Finegan, J. (2014). Effects of unit empowerment and perceived support for professional nursing practice on unit effectiveness and individual nurse well-being: A time-lagged study. *International Journal of Nursing Studies*, 51(12), 1615-1623. <https://doi.org/10.1016/j.ijnurstu.2014.04.010>

McMurray, A., Chaboyer, W., Wallis, M., Johnson, J., & Gehrke, T. (2011). Patients' perspectives of bedside nursing handover. *Collegian*, 18(1), 19-26. <https://doi.org/10.1016/j.collegian.2010.04.004>

Patterson, E. S. (2008). Structuring flexibility: The potential good, bad and ugly in standardisation of handovers. *BMJ Quality & Safety*, 17(1), 4-5. <http://dx.doi.org/10.1136/qshc.2007.022772>

Puhrenti, M., McMillan, J., & Lawn, S. (2014). Empowerment, patient centred care and self-management. *Health Expectations*, 17(3), 303-310. <https://doi.org/10.1111/j.1369-7625.2011.00757.x>

Spooner, A. J., Aitken, L. M., & Chaboyer, W. (2018). Implementation of an evidence-based practice nursing handover tool in intensive care using the knowledge-to-action framework. *Worldviews on Evidence-Based Nursing*, 15(2), 88-96. <https://doi.org/10.1111/wvn.12270>

Thomas, C. M., Bertram, E., & Johnson, D. (2009). The SBAR communication technique: Teaching nursing students professional communication skills. *Nurse Educator*, 34(4), 176-180. <https://doi.org/10.1097/NNE.0b013e3181aaba54>

Tobiano, G., Bucknall, T., Sladdin, I., Whitty, J. A., & Chaboyer, W. (2018). Patient participation in nursing bedside handover: A systematic mixed-methods review. *International Journal of Nursing Studies*, 77, 243-258. <https://doi.org/10.1016/j.ijnurstu.2017.10.014>

Yin, R. K. (2003). *Case study research: Design and methods*. Thousand Oaks, California: Sage Publications.

Cite this article as: Yetti, K., Dewi, N. A., Wigiarti, S. H., & Warashati, D. (2021). Nursing handover in the Indonesian hospital context: Structure, process, and barriers. *Belitung Nursing Journal*, 7(2), 113-117. <https://doi.org/10.33546/bnj.1293>

Developing an android-based application for early detection of postpartum depression symptoms in Indonesia

Beitung Nursing Journal
Volume 7(2), 118-124
© The Author(s) 2021
<https://doi.org/10.33548/bnj.1308>

Irma Nurbaeti*, Moch Syafii, and Kustati Budi Lestari

Abstract

Background: Postpartum depression has become a mental health problem in Indonesia. Screening symptoms of postpartum depression as early as one month during the postpartum period is needed. A smartphone application is considered one of the fastest ways for screening.

Objective: To develop an android-based application to early detect the symptoms of postpartum depression and evaluate its effectiveness.

Methods: The smartphone application was developed using Analysis, Design, Development, Implementation, and Evaluation (ADDIE) instruction model. The survey design was carried out to evaluate the effectiveness of the application among 109 postpartum mothers selected using convenience sampling. Data were collected from August to October 2019 in South Tangerang, Indonesia.

Results: The evaluation showed that the application is mostly positive. The appearance of the application is adequate (92.67%), easy to download (89.90%), understandable (96.33%), easy to fill-in (94.50%), beneficial (96.33%), new (90.83%), and reflecting psychological conditions (90.83%).

Conclusion: The symptoms of postpartum depression can be measured by the android-based application. It is therefore recommended to Indonesian mothers use this app to detect postpartum depression symptoms early. This app also helps nurses and midwives to prevent depression among postpartum mothers. Also, the app can be imitated by other developers for non-Indonesian mothers.

Keywords

ADDIE model; digital application; android; postpartum depression; smartphone; nursing; Indonesia

Postpartum depression is a serious mental disorder after childbirth, and it is considered a health problem in the community (O'Hara & McCabe, 2013). The World Health Organization (WHO) declared 2017 as the year of depression, and it is predicted in 2030 that depression will be the second leading cause of death after heart disease. Based on the population, postpartum mothers are the second contributor to depression after the adolescent population. This is likely because, in the postpartum period, an average mother is three times more likely to develop

depression than other periods (WHO, 2017). Postpartum depression can be called a hidden disease and a silent killer because postpartum depression is not like other mental disorders, such as psychosis or bipolar disorder. Postpartum depression is often invisible, and people will recognize it as a disease if the mother has committed acts to injure herself or her baby, such as abandoning, throwing away, strangling, or killing (Field, 2010; Garthus-Niegel, Ayers, Martini, Von Soest, & Eberhard-Gran, 2017; Hanington, Ramchandani, & Stein, 2010).

Nursing Program, Faculty of Health Sciences, Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia

Corresponding author:

Irma Nurbaeti, M.Kep., Ph.D

Faculty of Health Sciences Universitas Islam Negeri Syarif Hidayatullah Jakarta, Jl. Kertamukti No.5, Ciputat, Tangerang Selatan, Banten, Indonesia

Email: irma.nurbaeti@uinjkt.ac.id

Article info:

Received: 12 January 2021

Revised: 12 February 2021

Accepted: 16 March 2021

This is an **Open Access** article distributed under the terms of the **Creative Commons Attribution-NonCommercial 4.0 International License**, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

The prevalence of postpartum depression exists in the world. The rate of postpartum depression is between 10% to 40% in the United States of America and European countries (Fliala, Švancara, Klánová, & Kašpárek, 2017; Werner, Miller, Osborne, Kuzava, & Monk, 2015). Similarly, the prevalence in Asia's countries is between 10% to 40% (Kawai et al., 2017; Yusuff, Tang, Binns, & Lee, 2015). Whilst, the prevalence of postpartum depression in Indonesia is between 15% - 28% (Idaiani & Basuki, 2012; Nurbaeti, Deoisres, & Hengudomsuh, 2018).

Although postpartum depression exists in the community, its symptoms are not detected early. Almost all the signs of depression begin after a month of postpartum (WHO, 2016). O'Hara and McCabe (2013) stated that the first six months after delivery might represent a high-risk time for postpartum depression. Primipara mothers also have significant symptoms of postpartum depression than multipara mothers at one month of the postpartum period (Qandī, Jabr, Wäglar, & Collin, 2016).

According to hospital regulation, a mother will have early discharge on the second day after normal delivery or the fifth day for mothers with cesarean section. A mother usually has a postpartum follow-up, generally on the seventh day, when asked for a checkup. Many mothers, after months, have become less notice of the depression symptoms, which may lead to severe depression, and the babies are at risk of harm.

Screening for postpartum depression in the health service is not available yet nowadays. However, the role of health workers, including nurses, midwives, doctors, and psychologists, to provide a referral system for mothers diagnosed or screened with postpartum depression is very important. If the screening is performed as early as possible, counseling by trained health workers will be more effective in reducing the symptoms of depression.

On the other hand, a stigma towards postpartum mothers with mental health problems in the community also exists. The stigma is related to mood and mental disorder, feelings of disgrace, embarrassment, afraid labeling, and less understanding or less support from family or relatives. In fact, stigmatization towards mothers who have a mental illness is well-known to impede help-seeking (Schmied et al., 2016). In Indonesia, few women are unlikely to seek help from anyone for mental and psychological issues after childbirth because of the stigmatization. Most likely, they seek from family and relatives. This is another challenge both for mothers and healthcare providers.

Therefore, to cope with those problems, an android-based application was developed in this study, considering every mother in Indonesia has at least one smartphone today. This will help mothers to identify the depressive symptoms as early as possible. This study described the application development using Instruction Systems Design (ISD) or Analysis, Development, Design, Implementation, and Evaluation (ADDIE) Model and evaluated its effectiveness.

Developing a smartphone application using the ADDIE model

The instructional systems design (ISD) is a systematic method of developing education and training programs to improve performance (Battles, 2006). The ISD process involves five steps: analysis, development, design, implementation, and evaluation (ADDIE). The concept of ISD has been emerged since the early 1950s and firstly established in 1975. The ADDIE model had been created by the Center for Educational Technology (CET) at Florida State University. The first project of the ADDIE model was for the US Army and adapted by all the US Armed Forces (Hannum & Briggs, 1982). In this study, we developed an android-based application using the ADDIE model as the following:

Analysis

This step aims to analyze the system regarding its characteristics, importance, and limitations and formulate health workers' needs of the system. We analyzed the application by doing an in-depth interview with nurses, medical doctors, and midwives who work in outpatient and inpatient units in hospitals in Tangerang Banten Province and Sukabumi West Java Province, Indonesia. The results indicated that most postpartum mothers often come late to the hospitals after the symptoms of depression become severe. For that reason, all agreed that they need an innovation using a smartphone application to detect the signs of postpartum depression since a smartphone has become a part of everyone's life.

Design

In this step, the outline, description, and contents of the application are created (Hadi et al., 2017). We worked together closely with a software developer based on the results of the analysis step. The design related to pictures, flow, and the system used was discussed. The blue color in the initial logo display was chosen because depression refers to the word "blue," which illustrates the incidence of postpartum depression as a blue event for the mother and baby. We also searched the literature for finding instruments to measure postpartum depression and the effectiveness of the application in terms of ease of use, language, appearance, and benefits.

Development

We created the application based on the design step (Hadi et al., 2017). In this study, the app development was android based, with the name of *tes depresi* (depression test) or Initiative Maternal Screening Depression (IMSD) available in Google PlayStore (<https://play.google.com/store/apps/details?id=uijkt.lesdepresimatemal>). The research team developed this app under Irma Nurbaeti's name in 2019, and it is available only in the Indonesian language. No login is required for users. We provide the figures of the app for clarity.

Cover page

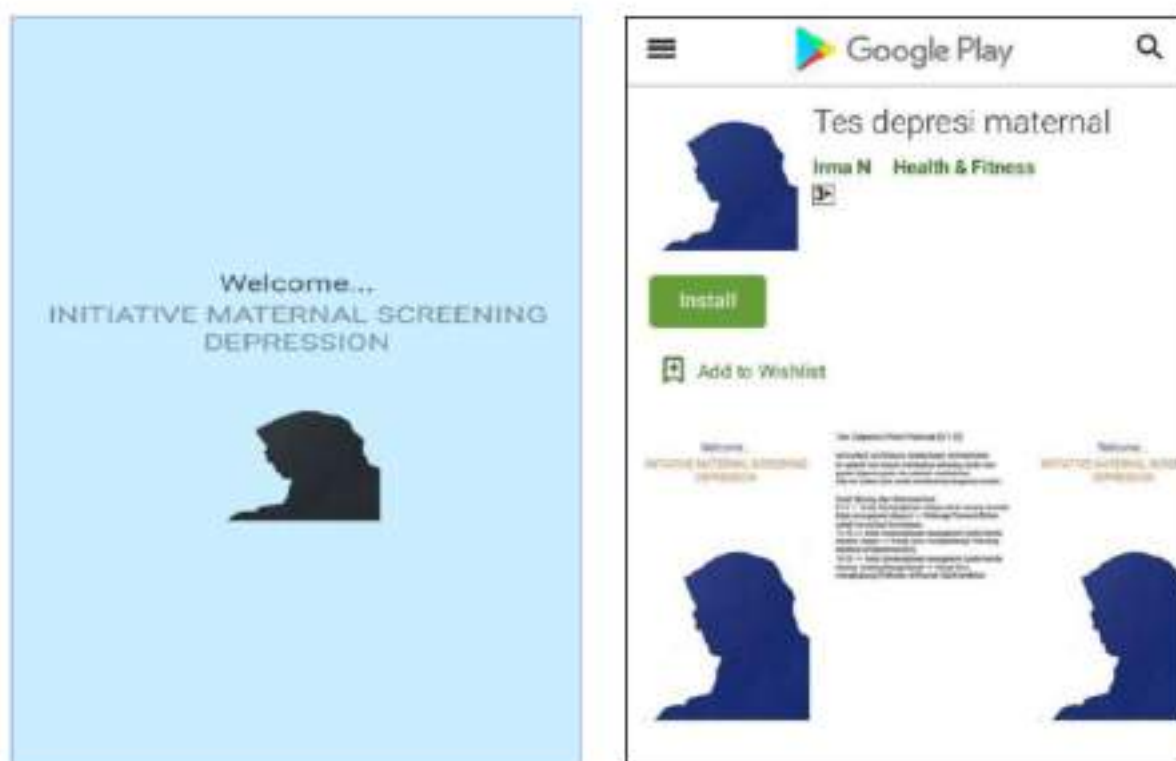


Figure 1 Cover of the application

Characteristics of mother and child

In this app, a mother is asked to provide their information about the mother's picture, health personnel who recommended using the application (if any), socio-

demographic characteristics, current obstetric condition, and current baby's condition (See Figure 2).


Tes Depresi Post Partum	Tes Depresi Post Partum	Tes Depresi Post Partum
 <p>Nama Petugas Kesehatan user1</p> <p>Nama</p> <p>Alamat</p> <p>Jalan</p> <p>RT</p> <p>RW</p> <p>Kelurahan</p> <p>Kecamatan</p> <p>Kabupaten/Kota</p> <p>Provinsi</p>	<p>Tanggal Lahir</p> <p>Agama</p> <p><input checked="" type="radio"/> Islam</p> <p><input type="radio"/> Katolik</p> <p><input type="radio"/> Protestan</p> <p><input type="radio"/> Adnan</p> <p><input type="radio"/> Buddha</p> <p><input type="radio"/> Hindu</p> <p><input type="radio"/> Konghucu</p> <p><input type="radio"/> Lainnya</p> <p>Tingkat Pendidikan</p> <p><input checked="" type="radio"/> Tamat SD/MI</p> <p><input type="radio"/> Tamat SMP/MTs</p> <p><input type="radio"/> Tamat SMA/MA</p> <p><input type="radio"/> Tamat D3/Akademik</p> <p><input type="radio"/> Tamat S1/S2/S3</p> <p>Pekerjaan</p> <p><input checked="" type="radio"/> RT (Bk) Rumah Tangga</p> <p><input type="radio"/> Karyawan swasta/karyawan pabrik</p> <p><input type="radio"/> Pegawai negeri sipil/TN</p> <p><input type="radio"/> Lainnya</p>	<p>Status Pernikahan</p> <p><input checked="" type="radio"/> Menikah</p> <p><input type="radio"/> Single</p> <p>Jumlah Anak Hidup</p> <p>Jumlah Anak Meninggal</p> <p>Uraian anak terakhir (dalam gram)</p> <p>Urut Persepsi</p> <p><input checked="" type="radio"/> Normal</p> <p><input type="radio"/> Vulvar</p> <p><input type="radio"/> Prolaps</p> <p><input type="radio"/> Sakton</p> <p>Jenis kelamin anak terakhir</p> <p><input checked="" type="radio"/> Laki-laki</p> <p><input type="radio"/> Perempuan</p> <p>Berat lahir anak terakhir (dalam gram)</p>

Figure 2 Characteristics of mother and child including name, address, date of birth, religion, level of education, working status, married status, number of children alive, number of children died and type of childbirth, current baby gender, and current newborn weight

The Modified Edinburgh Postpartum Depression Scale (EPDS) – Indonesian version

Tes Depresi Post Partum

1 Seminggu terakhir saya bisa tertawa dan melihat hal-hal yang lucu

- ☐ Ya, seperti biasanya
- ☐ Tidak begitu banyak
- ☐ Kurang bisa
- ☐ Tidak bisa sama sekali

2 Seminggu terakhir saya bisa melakukan hal-hal yang menyenangkan bagi saya

- ☐ Ya, sebanyak yang pernah saya lakukan sebelumnya
- ☐ Ya, tetapi agak kurang dari biasanya
- ☐ Kurang dari biasanya
- ☐ Hampir tidak bisa saya lakukan

3 Seminggu terakhir saya menyalahkan diri saya sendiri jika ada sesuatu yang salah

- ☐ Ya, sebagian besar saya menyalahkan diri sendiri
- ☐ Ya, beberapa saat saya menyalahkan diri sendiri
- ☐ Tidak, jarang saya menyalahkan diri sendiri
- ☐ Tidak, tidak pernah menyalahkan diri sendiri

4 Seminggu terakhir saya merasa cemas atau khawatir tapi alasannya yang tidak jelas

- ☐ Tidak, tidak sama sekali
- ☐ Hampir tidak pernah
- ☐ Ya, kadang-kadang
- ☐ Ya, sangat sering

9 Seminggu terakhir saya merasa takut atau panik untuk hal-hal dan alasan yang tidak jelas

- ☐ Ya, cukup banyak
- ☐ Ya, kadang-kadang
- ☐ Tidak, tidak banyak
- ☐ Tidak, tidak sama sekali

10 Seminggu terakhir saya merasa bahwa semua hal menjadi beban yang berat bagi saya

- ☐ Ya dan sebagian besar belum bisa saya atasi
- ☐ Ya, kadang-kadang saya belum bisa mengatasinya (belum biasa)
- ☐ Tidak, sebagian besar telah bisa saya atasi cukup baik
- ☐ Tidak, saya telah bisa mengatasinya dengan baik

Tes Depresi Post Partum

11 Seminggu terakhir saya merasa takut bahagia sampai sulit tidur

- ☐ Ya, sebagian besar waktu
- ☐ Ya, kadang-kadang
- ☐ Tidak sangat sering
- ☐ Tidak, tidak sama sekali

12 Seminggu terakhir saya merasa sedih, merasa atau menderita

- ☐ Ya, sebagian besar waktu
- ☐ Ya, cukup sering
- ☐ Tidak sangat sering
- ☐ Tidak, tidak sama sekali

10 Seminggu terakhir saya merasa sangat sedih sehingga saya tidak nafsu makan

- ☐ Ya, sebagian besar waktu
- ☐ Ya, cukup sering
- ☐ Hanya sekali
- ☐ Tidak, tidak pernah

11 Seminggu terakhir ada pikiran-pikiran untuk menyakiti diri saya sendiri

- ☐ Ya dan cukup sering
- ☐ Kadang-kadang
- ☐ Hampir tidak pernah
- ☐ Tidak pernah

12 Seminggu terakhir ada pikiran-pikiran untuk menyakiti bagi saya sendiri

- ☐ Ya dan cukup sering
- ☐ Kadang-kadang
- ☐ Hampir tidak pernah
- ☐ Tidak pernah

SELESAI

Figure 3 Modified EPDS - 12 items Indonesia version

Figure 3 shows the instrument used to detect postpartum depression using the Modified Edinburgh Postpartum Depression Scale (EPDS). The EPDS was developed by Cox, Holden, and Sagovsky (1987), and we had granted permission to use the instrument in this application. The original developer stated that the EPDS is not a diagnostic tool; therefore, we describe that our app is a tool for screening signs and symptoms of postpartum depression, not a tool for medical diagnosis of postpartum depression.

The Indonesia version of EPDS has already existed since 1998, first translated by Kusumadewi, Irawati, Elvira, and Wibisono (1998).

In this study, we added two items, numbers 10 and 12, suitable for symptoms of postpartum depression in Indonesian mothers. So, the questionnaire consists of 12 items. The validity test of the modified instrument was applied using Spearman rho, with the results ranged from 0.347 – 0.778. The reliability test was also conducted using

internal consistency, with a Cronbach alpha of 0.78. This indicates that all 12 items of the modified EPDS were valid and reliable.

Output

The questionnaire uses a rating score (0-36), with normal/non-depressed category (0-12), mild to moderate depression (13-15), and severe depression category (16-36) (Bhusal, Bhandari, Chapagai, & Gavidia, 2016; Török et al., 2013; Underwood, Waddie, D'Souza, Peterson, & Morton, 2017). Based on the score, a follow-up recommendation was made. If there is no depression or normal, a mother is recommended to keep contact with a nurse or a midwife. If having mild or moderate depression, it is suggested to consult a Psychologist. If a mother has severe depression, she is advised to go to a Psychiatry in the nearest hospital near her place. The example of the output can be seen in Figure 4.



Figure 4 Screening results and recommendation

Implementation

The implementation phase includes testing digital application prototypes to participants (Fajriya, Supriyana, Bahiyatun, & Widiyati, 2017; Kholifah, Supriyana, Bahiyatun, & Widiyati, 2017). In this study, the smartphone application was tested in postpartum mothers, and a survey design was carried out to evaluate the application. Of 123 postpartum mothers who had been contacted, 109 respondents were included using convenience sampling. The inclusion criteria of the mothers were (1) a woman giving birth with lived infant(s), (2) married status, (3) a mother who had no history of mental illness, (4) a mother who was not being treated for complications, (5) could read Bahasa Indonesia, (6) having a smartphone, and (7) agreed to participate in the study. The study setting was conducted at South Tangerang City,

Banten Province, Indonesia, for two months, from the second week of August to the second week of October 2019. This application has been registered at PlayStore (Figure 1).

Prior to data collection, the study was approved by the Ethical Committee, Faculty of Health Science, Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia, with approval number: Un.01/F.10/KP.01.1/KE. SP/07.08.001/2019. The study permission was also obtained from the Head of District, Ministry of Health, South Tangerang District, Indonesia, in the study setting.

The researchers and two research assistants did the data collection. The training was conducted to prepare the research assistants about the objective procedure of the study and how to operate the application. After getting a permission letter, the researchers or research assistants had contacted the hospitals, especially the Head of Maternal and Child Units, to identify eligible participants. Potential participants who met the inclusion criteria were invited to participate in the study. Each participant was asked to sign a written informed consent once they agreed to participate. They were also able to withdraw from the study without any penalty. Their identities were kept confidential. After the agreement, the researchers and research assistants visited each participant's home. During data collection, the participants were asked to download the application and follow the procedure (filled in the questionnaire). Data collection in each participant approximately spent from 10 to 15 minutes.

Evaluation

In this step, the android-based application has been evaluated by 109 postpartum mothers using the questionnaire. Table 1 shows the characteristics of the participants, in which the level of education of the participants tended to be similar between the elementary, high school, and graduated school, 36.70%, 28.44, and 34.86%, respectively. More than half of the participants (63.30%) were housewives, and more than two-third (66.06%) had two children and more. Of all participants, 74.31% had a normal birth, and 55.05% had a baby girl at the recent childbirth. The participants' ages ranged from 16 to 50 years old (mean 30.98, SD 6.18).

Table 1 Characteristics of the participants (N=109)

Characteristic	Category	n	%
Level of education	Elementary school	40	36.70
	High school	31	28.44
	University	38	34.86
Working status	Housewives	69	63.30
	Working	40	36.70
Number of children	One child	37	33.94
	Two or more	72	66.06
Type of labor	Normal	81	74.31
	Cesarian	28	25.69
Baby gender	Boy	49	44.95
	Girl	60	55.05

Table 2 shows the results of the app evaluation. The app was considered very easy (55.96%) and easy (33.94%) to download. Almost all participants (94.50%) also responded quite easy to fill out the application, and most of them (96.33%) answered the language used in the application was easy to understand. The majority of the participants described the display or appearance of the application as very interesting (65.2%) and interesting (27.53%). While they also claimed that they never used a similar test before (90.83%). Most participants said it was useful (96.33%) and reflected their psychological condition (90.83%). Almost all respondents (97.25%) will recommend this application to others.

Table 2 Evaluating of Application (N=106)

Characteristic	Category	n	%
Easy to download the application	Very easy	61	55.96
	Easy	37	33.94
	Remain difficult	6	5.50
	Difficult	5	4.60
Easy to fill in the application	Very easy	67	61.47
	Easy	36	33.03
	Remain difficult	1	0.90
	Difficult	5	4.60
Language	Very understandable	67	61.47
	Understandable	38	34.86
	Difficult to understand	4	3.67
Display of application	Very interesting	71	65.14
	Interesting	30	27.53
	Less interesting	6	5.50
	No-interesting at all	2	1.83
Previously used the similar application	Yes	10	9.17
	No	99	90.83
Beneficial	Yes	105	96.33
	No	4	3.67
Reflecting psychological conditions	Yes	99	90.83
	No	10	9.17
Recommended to others	Yes	106	97.25
	No	3	2.75

Implication for nursing and midwifery practice

Several implications of this study for nursing and midwifery practice: First, the Android-based app developed in this study can be used by nurses and midwives in their practice, especially for postpartum care. The best time for screening postpartum depression is in the first month of postpartum (Nurbaeti et al., 2018). However, the gap persists, which the detection of postpartum depression among mothers still often missed due to the regulation of the hospitals in regards to the length of stay. So, the app can be used before, during, and after follow-up; or introduced during discharge planning.

Second, considering the stigma that still exists in the Indonesian community towards mothers with depression and other mental health problems, the app is very useful for mothers for self-assessment of postpartum depression. Mostly the mothers do not want to come to hospitals to check their conditions due to the stigmatization. However, it is not the best solution; stop stigmatization among

mothers is necessary to do.

Third, the app should also be used in hospitals and public health centers in Indonesia. Many mothers often visit the public health centers first before going to the hospitals for follow-up. The app could be used in a routine postpartum program, especially in the early detection program in public health centers.

Fourth, the app will help nurses and midwives explore and understand the mothers' mental health based on the output category. At this point, the nurses and midwives may provide nursing and midwifery interventions to reduce the depression symptoms, and they should have the ability or improve their competency.

Last, the app was easy to download and use, easy to fill-in, sound, new design, interesting, and reflected their current condition. Therefore, this study serves as an input or idea for non-Indonesian developers to help mothers detecting post-partum depression.

Limitation of the study

The application can be accessed only via android smartphone, not via i-phone or laptop/computer, which needs further development. The use of a descriptive survey might limit the evaluation of results of the effectiveness of the app. Therefore, further studies are required to measure the efficacy, accuracy, and conformity using experimental designs.

Conclusion

It can be concluded that screening for postpartum depression using the smartphone application was practical and easy to use by postpartum mothers to detect the symptoms of postpartum depression. This innovation could have a positive contribution to nursing and midwifery practice to help reducing depression among mothers.

Declaration of Conflicting Interest

There was no conflict of interest to declare.

Funding

This research was funded by Universitas Islam Negeri Syarif Hidayatullah Jakarta under the research grant scheme for collaborative research (Un.01/KPA/511/2019).

Acknowledgment

We thank the Faculty of Health Sciences Universitas Islam Negeri Syarif Hidayatullah Jakarta for granting ethical permission, the Health Officers in South Tangerang city who allowed to collect data, and the participants' willingness to participate in this study.

Authors' Contributions

All authors contributed to the study's conception and design. IN conceptualized the study. IN, KBL, and MS collected data. IN and MS performed data management and analyses. IN, KBL, and MS drafted the original version of the manuscript and provided critical revisions. All authors have approved the final manuscript.

Authors' Biographies

Irma Nurbaeti, M.Kep., Ph.D is a Lecturer at the Nursing Program

of the Faculty of Health Science Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia.

Moch Syafii, MM is a Lecturer at the Faculty of Health Science, Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia.

Kustati Budi Lestari, M.Kep is a Lecturer at the Nursing Program of the Faculty of Health Science, Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia.

Data Availability Statement

The datasets generated during and/or analyzed during the current study are available in the [supplementary file](#).

References

- Batties, J. B. (2006). Improving patient safety by instructional systems design. *BMJ Quality & Safety*, 15(suppl 1), i25-i29. <http://dx.doi.org/10.1136/qshc.2005.015917>
- Bhusal, B. R., Bhandari, N., Chapegai, M., & Gavdia, T. (2016). Validating the Edinburgh Postnatal Depression Scale as a screening tool for postpartum depression in Kathmandu, Nepal. *International Journal of Mental Health Systems*, 10(1), 1-7. <https://doi.org/10.1186/s13033-016-0102-8>
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *The British Journal of Psychiatry*, 150(6), 782-786. <https://doi.org/10.1192/bjp.150.6.782>
- Fajriya, I. I., Supriyana, S., Bahiyatun, B., & Widyawati, M. N. (2017). Developing a web-based information system in detection of high-risk pregnancies in Semarang, Indonesia: ADDIE model. *Beitung Nursing Journal*, 3(4), 390-398. <https://doi.org/10.33546/bnj.160>
- Fiala, A., Švancara, J., Klánová, J., & Kašpárek, T. (2017). Sociodemographic and delivery risk factors for developing postpartum depression in a sample of 3233 mothers from the Czech ELSPEC study. *BMC Psychiatry*, 17(1), 1-10. <https://doi.org/10.1186/s12888-017-1261-y>
- Field, T. (2010). Postpartum depression effects on early interactions, parenting, and safety practices: A review. *Infant Behavior and Development*, 33(1), 1-6. <https://doi.org/10.1016/j.infbeh.2009.10.005>
- Garthus-Niegel, S., Ayers, S., Martini, J., Von Soest, T., & Eberhard-Gran, M. (2017). The impact of postpartum post-traumatic stress disorder symptoms on child development: A population-based, 2-year follow-up study. *Psychological Medicine*, 47(1), 161-170. <https://doi.org/10.1017/S003329171600235x>
- Had, S. P. I., Kuntjoro, T., Sumarni, S., Anwar, M. C., Widyawati, M. N., & Pujiastuti, R. S. E. (2017). The development of e-paragaph module as a learning platform for midwifery students: The ADDIE model. *Beitung Nursing Journal*, 3(2), 148-158. <https://doi.org/10.33546/bnj.77>
- Harrington, L., Ramchandani, P., & Stein, A. (2010). Parental depression and child temperament: Assessing child to parent effects in a longitudinal population study. *Infant Behavior and Development*, 33(1), 88-95. <https://doi.org/10.1016/j.infbeh.2009.11.004>
- Hannum, W. H., & Briggs, L. J. (1982). How does instructional systems design differ from traditional instruction? *Educational Technology*, 22(1), 9-14.
- Idaiani, S., & Basuki, B. (2012). Postpartum depression in Indonesia women: A national study. *Health Science Journal of Indonesia*, 3(1), 3-8.
- Kawai, E., Takagai, S., Takai, N., Itoh, H., Kanayama, N., Tsuchiya, K. J., & Team, H. B. C. S. (2017). Maternal postpartum depressive symptoms predict delay in non-verbal communication in 14-month-old infants. *Infant Behavior and Development*, 46, 33-45. <https://doi.org/10.1016/j.infbeh.2016.11.006>
- Kholifah, L. N., Supriyana, S., Bahiyatun, B., & Widyawati, M. N. (2017). Using ADDIE model to design early detection system of child growth and development in the Community Health Center of Bendosari, Semarang Indonesia. *Beitung Nursing Journal*, 3(3), 205-212. <https://doi.org/10.33546/bnj.105>
- Kusumadewi, I., Irawati, R., Elvira, S. D., & Wibisono, S. (1998). Validation study of the Edinburgh postnatal depression scale. *Indonesia Psychiatric Quarterly*, 31(2), 99-110.
- Nurbaeti, I., Decisres, W., & Hengudomsu, P. (2018). Postpartum depression in Indonesian mothers: Its changes and predicting factors. *Pacific Rim International Journal of Nursing Research*, 22(2), 93-105.
- O'Hara, M. W., & McCabe, J. E. (2013). Postpartum depression: Current status and future directions. *Annual Review of Clinical Psychology*, 9, 379-407. <https://doi.org/10.1146/annurev-clinpsy-050212-185612>
- Qandil, S., Jabr, S., Wagler, S., & Collin, S. M. (2016). Postpartum depression in the Occupied Palestinian Territory: A longitudinal study in Bethlehem. *BMC Pregnancy and Childbirth*, 16(1), 1-10. <https://doi.org/10.1186/s12884-016-1155-x>
- Schmied, V., Langdon, R., Matthey, S., Kemp, L., Austin, M. P., & Johnson, M. (2016). Antenatal psychosocial risk status and Australian women's use of primary care and specialist mental health services in the year after birth: A prospective study. *BMC Women's Health*, 16(1), 1-13. <https://doi.org/10.1186/s12905-016-0344-0>
- Török, A., Andó, B., Keresztúri, A., Sikovanyecz, J., Dudas, R. B., Janka, Z., ... Pál, A. (2013). The Edinburgh Postnatal Depression Scale: Translation and antepartum validation for a Hungarian sample. *Midwifery*, 29(4), 308-315. <https://doi.org/10.1016/j.midw.2012.01.011>
- Underwood, L., Walkie, K. E., D'Souza, S., Peterson, E. R., & Morton, S. M. B. (2017). A longitudinal study of pre-pregnancy and pregnancy risk factors associated with antenatal and postnatal symptoms of depression: Evidence from growing up in New Zealand. *Maternal and Child Health Journal*, 21(4), 915-931. <https://doi.org/10.1007/s10995-016-2191-x>
- Werner, E., Miller, M., Osborne, L. M., Kuzava, S., & Monk, C. (2015). Preventing postpartum depression: Review and recommendations. *Archives of Women's Mental Health*, 18(1), 41-60.
- WHO (2016). *International statistical classification of disease and related health problems*. Geneva: World Health Organization.
- WHO (2017). Maternal mental health. Retrieved from http://www.who.int/mentalhealth/maternal-child/maternal_mental_health/en
- Yusuff, A. S. M., Tang, L., Binns, C. W., & Lee, A. H. (2015). Prevalence and risk factors for postnatal depression in Sabah, Malaysia: A cohort study. *Women and Birth*, 28(1), 25-29. <https://doi.org/10.1016/j.wombi.2014.11.002>

Cite this article as: Nurbaeti, I., Syafii, M., & Lestari, K. B. (2021). Developing an android-based application for early detection of postpartum depression symptoms in Indonesia. *Beitung Nursing Journal*, 7(2), 110-124. <https://doi.org/10.33546/bnj.1308>

Working alliance among mental health nurses in Indonesia: A comparative analysis of socio-demographic characteristics

Beitungs Nursing Journal
Volume 7(2): 125-130
© The Author(s) 2021
<https://doi.org/10.33548/bnj.1259>

Iyus Yosep^{1*}, Henny Suzana Mediani¹, and Linlin Lindayani²

Abstract

Background: Working alliance between therapist and client in psychotherapy practice has become proven to compensate for a significant difference in various psychotherapy modalities. However, few studies have investigated the structure of alliance in the context of nurses working at mental health hospitals in Indonesia.

Objective: This study aimed to compare the working alliance of mental health nurses according to socio-demographic characteristics.

Methods: A cross-sectional research was performed at the Mental Health Hospital in West Java, Indonesia, as a referral hospital in Indonesia from May to December 2019. The inclusion criteria were nurses with a minimum of one year of working experience and a Diploma III certificate in nursing. Convenience sampling was used to recruit 120 nurses who agreed to join in this study. The working alliance was measured using Working Alliance Inventory-Short Revised-Therapist (WAI-SRT).

Results: The majority of the respondents were female (77.5%), holding a Diploma III degree in nursing (49.17%), having working experience ranged from 11 to 15 years (34.17%), and working at the chronic unit (32.5%). The mean score of the working alliance was 44.46 (SD = 11.32). The domain of agreement on goals had a higher mean score (17.65 ± 3.45), followed by the task domain (16.56 ± 5.81) and bond domain (22.10 ± 7.23). There was a significant difference in working alliance according to education level and working experience ($p < 0.05$), while no significant differences in terms of gender and working unit.

Conclusion: Mental health nurses with higher education levels and more vast working experience had higher working alliances. Thus, nurse managers and hospital policymakers should provide Continuous Nursing Education (CNE), working alliance training, and therapeutic strategies for nurses to improve their working alliances. It is also essential to cooperate with nursing schools to include working alliances as learning objectives.

Keywords

working alliance; mental health; Indonesia; psychiatric nursing; hospitals; demography

Working alliance between therapist and client has become proven in psychotherapy practice to compensate for a significant aspect of the difference in result throughout various modalities of psychotherapy (Nortcross, 2011). The

practitioner-client relationship is also seen as enormously crucial in mandatory care. To investigate the significance of this relationship, many studies have extended the principle of alliance to the area of compulsory care

¹Faculty of Nursing, Padjadjaran University, Indonesia

²Sekolah Tinggi Ilmu Keperawatan PPNi Jawa Barat, Bandung, Indonesia

Corresponding author:

Iyus Yosep, S.Kp., M.Si., M.Sc, PhD

Associate Professor, Mental Health Department

Faculty of Nursing, Padjadjaran University

Jl. Raya Bandung-Sumedang KM. 21, Hegamanah, Jatinangor

Kabupaten Sumedang, West Java, 45303, Indonesia

Email: iyuskasep_07@yahoo.com

Article Info:

Received: 7 December 2020

Revised: 4 January 2021

Accepted: 31 March 2021

This is an **Open Access** article distributed under the terms of the **Creative Commons Attribution-NonCommercial 4.0 International License**, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2525-181X

(Menger, 2018; Polaschek & Ross, 2010). In general terms, the working alliance contains numerous elements relevant to the patient-clinician partnership (Flückiger et al., 2018). There are two forms of therapeutic alliance: (1) the Type I alliance, which is characterized by the patient's presumed support for him or her, and (2) the Type II, which consists of teamwork that includes both the patient and the therapist in resolving the patient's difficulty and distress (Luborsky, 1994). In the meantime, the working alliance has three elements: (1) the connection between both the client and therapist, which would be likely to be characterized and experienced in matters of love, faith, respect for one another, and a sense of shared responsibility and vision of the task, (2) the consensus between both the client and therapist on the objectives of psychotherapy, and (3) the commitment between both the client and therapist on the goals of psychotherapy (Bordin, 1994).

Alliance at general hospitals is different from that at mental hospitals. Alliance at psychiatric hospitals has unique characteristics, including the consumers requiring the nurse's expertise in interpersonal relations and empathy (Reynolds & Scott, 1999). Nurses are needed to be prepared for unpredictable situations at mental hospitals (Happell et al., 2003). Similarly, Ward (2013) found that fear is "part of the job and part of the unpredictable nature of caring for people experiencing complex distortions in thinking and behavior." Alliance at mental hospitals, there are three essential characteristics. First, alliance for mental hospital nurses requires adeptness to build an interpersonal relationship because the behavior of consumers is challenging to predict, such as how to communicate with people who are depressed, withdrawing themselves from others, committing suicide, threatening, and behaving aggressively (Del Piccolo & Goss, 2012). Second, there is an unpredictable situation for nurses at work, such as cooperating with patients when suddenly they become threatening because of hearing a voice or hallucination (Jacob & Holmes, 2011). Third, another characteristic is the presence of violent behavior that patients may likely do against nurses. However, although hospitals' settings are different, the alliance is an essential part of nurses' role as facilitators for patients to improve or as "facilitators for the patients to grow" (Hemsley et al., 2012).

Many factors influence alliance at psychiatric hospitals, including environment or workplace climate (Green et al., 2014), professional nurse's attitude, and patient's condition (Zugai et al., 2015). Working environment may take the form of supporting room atmosphere, a clear program, and guarantee of spontaneity are significant components for patient's alliance (Johansson & Eklund, 2006). A study at Canadian Medium-Security Forensic Psychiatric Facility concludes that nurses often distance themselves from ideal service under a particular condition. In contrast, nurse's attitude has been a predictor in a successful relationship between patients and therapists at psychiatric hospitals (Jacob & Holmes, 2011). Research by Mcsherry et al.

(2012) reported that behavior and attitude have a strong relation with successful alliance; for example, making positive comments about the client and greeting the client with a smile. Spiers and Wood (2010) concluded that building an alliance consisted of three non-linear overlapping phases: "establishing mutuality," "finding the fit in reciprocal exchange," and "activating the power of the client." Those are important to prevent negative perception in a team when achieving a target because the three views will provide an in-depth understanding of the actual condition. However, few studies exploring comparing demographics characteristics with the working alliance in mental health hospitals. Thus it becomes clear that while the role of the working alliance in forming clinical outcomes is founded in the literature on psychotherapy, the work alliance has played an important role in other disciplines (Stagg et al., 2019). Understanding the working alliance of mental health nurses and compare it according to socio-demographic characteristics is important, as they offer critical insights into how health care professionals can influence the patient's outcome. Insights gained from comparing working alliances of mental health nurses according to socio-demographic characteristics can also help create and evaluate related strategies for mental health nurses to strengthen working relationships. This study aimed to compare the working alliance of mental health nurses according to socio-demographic characteristics.

Methods

Study Design

Cross-sectional research was conducted at the Mental Health Hospital in West Java, Indonesia, as a referral hospital in Indonesia from May to December 2019.

Samples

All the samples were recruited from all locations in the associated hospital. The inclusion criteria were nurses with a minimum of one year of working experience and a certificate of Diploma III in nursing. The nurses who took leave were not allowed. Convenience sampling was employed, with a total of 120 nurses agreed to join in this study.

Measures

The socio-demographic characteristics included gender (male versus female), level of education (Diploma III, Bachelor, and Master degree with Specialist), duration of work in years, and working units (polyclinic, acute room, chronic room, emergency room, drug addiction, and administration).

The working alliance was measured using Working Alliance Inventory-Short Revised-Therapist (WAI-SRT) for nurses developed by Adam O. Horvath (<http://wai.proffhorvath.com/>). The subscales of the working alliance are goal, task, and bond. This instrument consists of ten items with five Likert-scale from seldom (0) to always (5).

A higher score indicates a higher working alliance. Then, the working alliance level was categorized into low and high; low if score less than overall mean score, high if the score higher than the overall mean score. This instrument has been forward-backward translated and adapted into Bahasa Indonesia. The process includes four steps: forward translation, expert panel back-translation, pre-testing and cognitive interviewing, and final version and documentation (World Health Organization, 2016). This process aimed to get final language versions of the Indonesia instrument and conceptually equivalent for each target country or culture. The Bahasa version of WAI-SRT was subject to a content test (content validity) by a mental health nursing expert (Head of Department of Mental Health Nursing Universitas Padjadjaran Indonesia). The Cronbach's alpha in the current study was 0.947.

Data Collection

The data were collected using questionnaires containing items organized on the basis of variable indicators, which were distributed to the respondents to receive their responses to each item. The steps and the procedure must be compatible with the research questions. The approach used in this study involved the completion of questionnaires on experiences of sensitivity to violence and loyalty to the alliance. These tools took about five to ten minutes to complete. After completing the questionnaires, the participants could return them, and the researchers reviewed their completeness.

Data Analysis

The descriptive analysis and inferential statistics were performed where appropriate. The results of normality

testing showed that working alliance was normally distributed based on the nonsignificant Kolmogorov-Smirnov test. The standard deviation (SD) of the mean was added for continuous data, while frequency and percentage were used for categorical variables. ANOVA and post hoc analysis with Turkey's test adjustments were done to determine differences between demographic characteristics with overall and domain scores of working alliances. A confidence interval of 95 % was used. The *p*-value of less than 0.05 was considered significant. The data were recorded and analyzed using SPSS version 20.

Ethical Consideration

Ethical approval from the ethical committees of mental health hospitals in West Java was obtained prior to data collection (Approval number: 2399/UN6.L/LT/2016). Subsequently, the researcher requested data on nurses working in the hospital under review and told the head nurse of the qualifying requirements. Before completing the questionnaires, the detailed consent form was given to the nurses.

Results

The total number of respondents was 120 psychiatric nurses from mental hospitals in West Java Province, Indonesia. The majority of the respondents were female (77.5%) and holding a diploma III degree in nursing (49.17%). A few of them were master's graduates (10%), and the working experience duration ranged from 11 to 15 years (34.17%). Nurses were working more in the chronic rooms (32.5%) (Table 1).

Table 1 Socio-demographic of nurses by the level of working alliance (*N* = 120)

Socio-Demographic	Working Alliance	
	Low (<i>n</i> = 55)	High (<i>n</i> = 65)
Gender		
Male	12 (44.4)	15 (55.6)
Female	43 (46.2)	50 (53.8)
Education Level		
Diploma III	46 (78.0)	13 (22.0)
Bachelor	8 (16.3)	41 (83.7)
Master degree with Specialist	1 (8.3)	11 (91.7)
Working Duration, Mean \pm SD	15.56 \pm 7.65	18.43 \pm 8.73
Less than ten years	16 (61.5)	10 (38.5)
11-15 years	22 (53.7)	19 (46.3)
16-20 years	15 (46.9)	17 (53.1)
More than 20 years	2 (9.5)	18 (90.5)
Working Unit		
Polyclinic	4 (66.6)	2 (33.3)
Acute Room	13 (37.1)	22 (62.9)
Chronic Room	20 (51.3)	19 (48.7)
Emergency Room	12 (66.7)	6 (33.3)
Drug Addiction	4 (44.4)	5 (55.6)
Administration	2 (15.4)	11 (84.6)

The mean score of the working alliance was 44.46 ($SD = 11.32$), with a minimum score was 30, and the maximum score was 50. For each subscale, agreement on goals had

a higher, with a mean of 17.65 ($SD=3.45$), followed by task (16.56 ± 5.81) and bond (22.10 ± 7.23) (Table 2).

Table 2 Detail Exploration of working alliance among mental health nurses in Indonesia ($N = 120$)

Domain	Mean \pm SD	Range
Overall score	44.46 \pm 11.32	30 – 50
Goal	17.65 \pm 3.45	8 – 20
Task	16.56 \pm 5.81	8 – 20
Bond	22.10 \pm 7.23	15 – 25

Table 3 shows differences between socio-demographic characteristics with overall score and domain scores of working alliances. Findings showed a significant difference in the overall score of the working alliance and all subscales, including goal, task, and bond domains, according to the educational level ($p < 0.05$). Nurses with bachelor level had working alliance than those with master

and diploma. In addition, there was a significant difference in working alliance according to working duration ($p < 0.05$), in which nurses who worked 11 to 15 years had higher working alliance than those who worked for more than 15 years or less than ten years. There was no significant difference in working alliance according to gender and working division.

Table 3 Differences in working alliance of mental health nurses by socio-demographic characteristics ($N = 120$)

	Overall Score Mean \pm SD	t/F (p-value)	Goal Score Mean \pm SD	t/F (p-value)	Task Score Mean \pm SD	t/F (p-value)	Bond Score Mean \pm SD	t/F (p-value)
Gender*		1.19		2.47		1.85		1.36
Male	43.91 \pm 10.35	(0.281)	17.32 \pm 3.84	(0.410)	16.73 \pm 5.23	(0.535)	22.74 \pm 7.23	(0.120)
Female	44.31 \pm 09.42		18.57 \pm 4.72		16.04 \pm 5.81		23.12 \pm 7.23	
Education Level		5.32		4.49		4.12		3.79
Diploma III	42.21 \pm 11.71	(0.007)	17.62 \pm 3.84	(0.041)	14.61 \pm 4.63	(0.021)	20.56 \pm 5.76	(0.03)
Bachelor	46.82 \pm 12.32 ^a		19.04 \pm 4.72 ^a		17.24 \pm 6.47 ^a		25.78 \pm 6.92 ^a	
Master degree with Specialist	43.16 \pm 11.58		18.42 \pm 4.72		15.11 \pm 5.04		23.05 \pm 7.35	
Working Duration		5.49		5.83		5.58		6.18
Less than ten years	41.06 \pm 11.71	(0.021)	16.91 \pm 6.84	(0.013)	14.73 \pm 5.53	(0.01)	20.56 \pm 5.76	(0.001)
11-15 years	47.34 \pm 12.32 ^b		19.04 \pm 7.49 ^b		16.56 \pm 7.90 ^b		25.78 \pm 6.92 ^b	
>16 years	45.78 \pm 11.58		17.35 \pm 5.31		14.53 \pm 6.84		23.05 \pm 7.35	
Working Unit		1.98		2.01		1.73		1.76
Polyclinic	43.31 \pm 11.75	(0.613)	16.56 \pm 6.13	(0.549)	16.73 \pm 5.23	(0.549)	23.60 \pm 5.25	(0.425)
Acute Room	44.56 \pm 10.32		18.53 \pm 4.32		16.04 \pm 5.81		22.71 \pm 6.62	
Chronic Room	43.71 \pm 12.05		17.38 \pm 5.47		16.04 \pm 5.81		23.18 \pm 7.14	
Others	44.32 \pm 11.42		17.45 \pm 4.42		16.04 \pm 5.81		24.73 \pm 6.95	

Note: *statistics test using independent t-test; ^aresults from post hoc with Turkey's test

Discussion

This study found that the majority of nurses working at mental health hospital has a good working alliance. The importance of the partnership between nurses and patients with mental illness is becoming an important topic (Thurston, 2003). However, conflicting opinions and different conclusions have been stated by Riso and Steinsbekk (2015) that the relationship between patients and nurses reported no significant effects on patients outcome. This is because the workload of psychiatric nurses is very high, and the treatment of mentally ill patients varies in the general hospital (Khalaila & Cohen, 2016; Suro & Weisman De Mamani, 2013). On the

contrary, Roche and Duffield (2010) found that, compared to nurses in general settings, nurses in mental health hospitals had scored higher in nurse-patient relationships, although the burden for engaging with patients was very high. Therefore, it is vital to establish the importance of the alliance between nurses and patients since the alliance has been confirmed to reduce the high burden of psychiatric nurses associated with complete patient dependency on nurses (Suro & Weisman De Mamani, 2013).

There was a significant difference between education level and working alliance. The lower the education level, the lower the working alliance would be. Furthermore, with regard to the partnership in psychiatric hospitals, the standard of education is becoming an important cause.

First, the mental hospital nurses' alliance allows the nurses to develop interpersonal relationships with the clients, primarily to interact with individuals who are depressed, withdraw from others, commit suicide, attack, and behave aggressively (Del Piccolo & Goss, 2012). Second, there is a condition that is utterly uncertain for nurses, such as cooperating with patients when they are unexpectedly threatened by hearing a voice or hallucination (Jacob & Holmes, 2011). Another trait is the involvement of patients with aggressive behavior, which is likely to occur towards nurses. This situation involves a specific competence, in particular through education and training.

Another view is that nurses are trained to face the various characteristics of mentally ill patients. Regardless of how difficult the experience is, it will continue to be professional (Trenoweth, 2003). The study concludes that nursing professionals have the expertise and the ability to assess patient abuse easily and intuitively. Caregivers can minimize the risk of abuse by being able to recognize circumstances and work as a team. Happell et al. (2003) show that nurses appear to leave or resign after abuse from the hospital. Furthermore, nurses in the acute room have been reported to be suffering from distress; they dispute with their families and want to leave their jobs (Daneault et al., 2006). In reality, trauma and violence exposures can adversely impact nurses and even hinder patient involvement.

To cope with the burden, specific training and education in psychiatric hospitals are very important. The pressure is a concern not only at home for the family but also at the psychiatric institution for nurses (Ennis & Bunting, 2013). It leads to a rise in occupational distress for nurses (Khalaila & Cohen, 2016). That's because the distinction is that patients with emotional and mental wellbeing suffer from a lack of productivity and capacity to help. This can be justified by the argument. This is exacerbated by the unique state of the mentally ill patient, such as hallucination, depression, self-isolation, suspicion, and risk to himself and the environment. In short, it can be said that a high level of education to promote a nurse's alliance with the patient would reduce the strain on the nurse (Happell et al., 2003).

Limitations of this study might include the low number of samples. Ideally, to generalize the findings and represent the national study, the samples should include all mental hospitals in all Indonesian provinces.

Conclusion

Our study revealed that the working alliance of mental health nurses in Indonesia was good, including the domains of agreement on goals, tasks, and bonds. The nurses with higher education and more ample working experience showed higher working alliances. Therefore, it is suggested to hospital policymakers and nurse managers to provide Continuous Nursing Education (CNE), working alliance training, and therapeutic strategies for nurses, especially in unpredictable situations. It is also essential to

cooperate with nursing schools to include working alliances as learning objectives.

Declaration of Conflicting Interest

The authors declare no conflict of interest in this study.

Funding

This study was fully funded by Padjadjaran University, Indonesia.

Acknowledgment

The authors would like to acknowledge the support given by Padjadjaran University, and the authors also would like to thank all participants.

Authors' Contribution

IY and HS contributed equally to the conception and study design, data collection, data analysis, data interpretation, drafted and revised the manuscript. LL contributed to data collection, data analysis and interpretation, and critically drafted and revised the article. All authors agreed with the final version of the article.

Data Availability Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' Biographies

Iyus Yosep, S.Kp., M.Si., M.Sc., PhD is an Associate Professor at the Mental Health Department of the Faculty of Nursing, Padjadjaran University, Indonesia.

Henny Suzana Mediani, S.Kp., M.Ng., PhD is an Associate Professor at the Pediatric Nursing Department of the Faculty of Nursing, Padjadjaran University, Indonesia.

Linlin Lindsayani, S.Kep., Ners., MSN, PhD is an Assistant Professor at the Medical Surgical Nursing Department of the Sekolah Tinggi Ilmu Keperawatan PPNI Jawa Barat, Indonesia.

References

- Bordin, E. S. (1994). Theory and research on the therapeutic working alliance: New directions. In A. O. Horvath & L. S. Greenberg (Eds.), *Wiley series on personality processes: The working alliance: Theory, research, and practice* (pp. 13-37). New Jersey: John Wiley & Sons.
- Daneault, S., Lussier, V., Mongeau, S., Hudon, E., Paillet, P., Dion, D., & Yelle, L. (2006). Primum non nocere: Could the health care system contribute to suffering? In-depth study from the perspective of terminally ill cancer patients. *Canadian Family Physician* 52(12), 1574-1575.
- Del Piccolo, L., & Goss, C. (2012). People-centred care: New research needs and methods in doctor-patient communication. *Challenges in mental health. Epidemiology and Psychiatric Sciences*, 21(2), 145-149. <https://doi.org/10.1017/S2045796012000091>
- Ennis, E., & Bunting, B. P. (2013). Family burden, family health and personal mental health. *BMC Public Health*, 13(1), 255. <https://doi.org/10.1186/1471-2458-13-255>
- Flückiger, C., Del Re, A. C., Wampold, B. E., & Horvath, A. O. (2018). The alliance in adult psychotherapy: A meta-analytic synthesis. *Psychotherapy*, 55(4), 316-340. <http://dx.doi.org/10.1037/pst0000172>
- Green, A. E., Albanese, B. J., Cafri, G., & Aarons, G. A. (2014). Leadership, organizational climate, and working alliance in a children's mental health service system. *Community Mental Health Journal*, 50(7), 771-777. <https://doi.org/10.1007/s10597-013-9668-5>

- Happell, B., Martin, T., & Pinikahana, J. (2003). Burnout and job satisfaction: A comparative study of psychiatric nurses from forensic and a mainstream mental health service. *International Journal of Mental Health Nursing*, 12(1), 39-47. <https://doi.org/10.1046/j.1440-0979.2003.00267.x>
- Hemsley, B., Balandin, S., & Worrall, L. (2012). Nursing the patient with complex communication needs: Time as a barrier and a facilitator to successful communication in hospital. *Journal of Advanced Nursing*, 68(1), 118-126. <https://doi.org/10.1111/j.1365-2648.2011.05722.x>
- Jacob, J. D., & Holmes, D. (2011). Working under threat: Fear and nurse-patient interactions in a forensic psychiatric setting. *Journal of Forensic Nursing*, 7(2), 68-77. <https://doi.org/10.1111/j.1939-3938.2011.01101.x>
- Johansson, H., & Eklund, M. (2006). Helping alliance and early dropout from psychiatric out-patient care. *Social Psychiatry and Psychiatric Epidemiology*, 41(2), 140-147. <https://doi.org/10.1007/s00127-005-0009-z>
- Khalaila, R., & Cohen, M. (2016). Emotional suppression, caregiving burden, mastery, coping strategies and mental health in spousal caregivers. *Aging & Mental Health*, 20(9), 908-917. <https://doi.org/10.1080/13607863.2015.1055551>
- Luborsky, L. (1994). Therapeutic alliances as predictors of psychotherapy outcomes: Factors explaining the predictive success. In A. O. Horvath & L. S. Greenberg (Eds.), *Wiley series on personality processes: The working alliance: Theory, research, and practice* (pp. 38-50). New Jersey: John Wiley & Sons.
- McSherry, L. A., Dombrowski, S. U., Francis, J. J., Murphy, J., Martin, C. M., O'Leary, J. J., & Sharp, L. (2012). 'It's a can of worms': Understanding primary care practitioners' behaviours in relation to HPV using the theoretical domains framework. *Implementation Science*, 7(1), 1-16. <https://doi.org/10.1186/1748-5808-7-73>
- Menger, A. (2016). *De werkaliantie in het gedwongen kader: Onderzoek bij het reclasseringtoezicht [The working alliance in the forced context: Investigated in probation supervision]* (PhD Thesis), Vrije Universiteit Amsterdam, Amsterdam.
- Nortcross, J. C. (2011). *Psychotherapy relations that work: Evidence-based responsiveness*. New York: Oxford University Press.
- Polaschek, D. L. L., & Ross, E. C. (2010). Do early therapeutic alliance, motivation, and change readiness predict therapy outcomes for high risk violent prisoners. *Criminal Behaviour and Mental Health*, 20(2), 100-111. <https://doi.org/10.1002/cbm.759>
- Reynolds, W. J., & Scott, B. (1999). Empathy: A crucial component of the helping relationship. *Journal of Psychiatric and Mental Health Nursing*, 6(5), 363-370. <https://doi.org/10.1046/j.1365-2850.1999.00228.x>
- Rise, M. B., & Steinsbekk, A. (2015). Does implementing a development plan for user participation in a mental hospital change patients' experience? A non-randomized controlled study. *Health Expectations*, 18(5), 809-825. <https://doi.org/10.1111/hex.12105>
- Roche, M. A., & Duffield, C. M. (2010). A comparison of the nursing practice environment in mental health and medical-surgical settings. *Journal of Nursing Scholarship*, 42(2), 195-206. <https://doi.org/10.1111/j.1547-5060.2010.01348.x>
- Spiers, J. A., & Wood, A. (2010). Building a therapeutic alliance in brief therapy: The experience of community mental health nurses. *Archives of Psychiatric Nursing*, 24(6), 373-386. <https://doi.org/10.1016/j.apnu.2010.03.001>
- Stagg, K., Douglas, J., & Iacono, T. (2019). A scoping review of the working alliance in acquired brain injury rehabilitation. *Disability and Rehabilitation*, 41(4), 489-497. <https://doi.org/10.1080/09638288.2017.1396368>
- Suro, G., & Weisman de Mamani, A. G. (2013). Burden, interdependence, ethnicity, and mental health in caregivers of patients with schizophrenia. *Family Process*, 52(2), 299-311. <https://doi.org/10.1111/famp.12002>
- Thurston, I. (2003). Developing the therapeutic alliance in acute mental health care. *Psychoanalytic Psychotherapy*, 17(3), 190-205. <https://doi.org/10.1080/1474973032000114932>
- Trenoweth, S. (2003). Perceiving risk in dangerous situations: Risks of violence among mental health inpatients. *Journal of Advanced Nursing*, 42(3), 278-287. <https://doi.org/10.1046/j.1365-2648.2003.02617.x>
- Ward, L. (2013). Ready, aim fire! mental health nurses under siege in acute inpatient facilities. *Issues in Mental Health Nursing*, 34(4), 281-287. <https://doi.org/10.3109/01612840.2012.742603>
- World Health Organization. (2016). Process of translation and adaptation of instruments. Retrieved from http://www.who.int/substance_abuse/research_tools/translation/en/
- Zugai, J. S., Stein-Parbury, J., & Roche, M. (2015). Therapeutic alliance in mental health nursing: An evolutionary concept analysis. *Issues in Mental Health Nursing*, 36(4), 249-257. <https://doi.org/10.3109/01612840.2014.969795>

Cite this article as: Yosep, I., Mediani, H. S., & Undayani, L. (2021). Working alliance among mental health nurses in Indonesia: A comparative analysis of socio-demographic characteristics. *Beltung Nursing Journal*, 7(2), 125-130. <https://doi.org/10.33548/bnj.1259>

Relationships between symptom control, medication management, and health literacy of patients with asthma in Vietnam

Beitung Nursing Journal
Volume 7(2), 131-138
© The Author(s) 2021
<https://doi.org/10.33546/bnj.1398>

Doan Thi Kim Cuc¹, Nonglak Methakanjanasak², and Ho Thi Thuy Trang³

Abstract

Background: Asthma is a significant health issue among Vietnamese adults in both urban and rural areas. The disease needs serious concern to minimize impact and improve the situation.

Objective: This study aimed to describe the level of health literacy, symptom control, and medication management and determine the relationships among them in patients with asthma in Da Nang, Vietnam.

Methods: A cross-sectional descriptive study was conducted among 84 patients with asthma. The questionnaires were used in this study, including demographic form, the Short-Form Health Literacy questionnaire (HL-SF12), Asthma Control Test (ACT), and Medication Adherence Reporting Scale for Asthma (MARS-A). Pearson product-moment correlation was applied to determine the relationship between health literacy, symptom control, and medication management.

Results: The score revealed for general-health literacy, symptom control, and medication management were 28.70 ($SD = 9.66$), 17.72 ($SD = 4.67$), and 3.63 ($SD = 0.75$), respectively. Health literacy level had moderate positive relationships with symptom control ($r = 0.41$) and medication management ($r = 0.44$).

Conclusion: The patients had limited health literacy, partially controlled symptom, and poor adherence to the medication. Health literacy level had moderate positive relationships with symptom control and medication management. These findings are crucial for effective treatment and management of the disease in Vietnam. To improve medication management and symptom control among patients with asthma, nurses should concern patients' health literacy level.

Keywords

asthma; health literacy; medication therapy management; symptom control; adult; nursing; Vietnam

Globally, asthma prevalence is on the rise, such that 339.4 million people were affected in 2018 (The Global Asthma Network, 2018). Of importance, over 80% of asthma-related deaths occur in low-and lower-middle-income countries (World Health Organization, 2019). In Vietnam, asthma is a major health issue among adults in both urban and rural areas. The number of asthma in adults aged 21 to 70 is 3.9% to 5.6% (Lâm et al., 2011). As such, it has caused an enormous impact on the health and economy of the country. According to a study, the total economic

burden of asthma is estimated to range from \$34.7 to \$55.3 for outpatient and \$45.1 to \$107.2 for inpatient annually (Le et al., 2019). Studies have shown that asthma causes disability, limited activity, poor quality of life, and poor use of medical resources (Alpaydin, Bora, Yorgancioglu, Coskun, & Celik, 2012). Asthma affects individuals and affects both the patient's family and society.

The essential aspects for improving outcomes in patients with asthma are health literacy, symptom control, and medication management. Health literacy (HL) refers to

¹ Faculty of Nursing, Da Nang University of Medical Technology and Pharmacy, Vietnam

² Faculty of Nursing, Khon Kaen University, Thailand

³ Faculty of Nursing, Hue University of Medicine and Pharmacy, Hue University, Vietnam

Corresponding author:

Assistant Professor Nonglak Methakanjanasak

Faculty of Nursing, Khon Kaen University

123 Mitaparp Road, Muang, Khon Kaen, Thailand 40002

Phone: (+66) 926651549 | Fax: 043 – 424809

Email: noschu@kku.ac.th

Article Info:

Received: 1 February 2021

Revised: 2 March 2021

Accepted: 6 April 2021

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

a person's ability to respond to the knowledge, motivation, and skills of finding, understanding, appraising, and applying health information to make judgments and decisions in daily life related to health care, disease prevention, and health promotion to improve the quality of life throughout life. Health literacy is crucial but limited among the patients in low-income countries (Sorensen et al., 2015; Sorensen et al., 2012). Although Duong et al. (2019) reported that the health literacy index for the general people in Vietnam was low (29.5 ± 9.5), no study reported health literacy in patients with asthma. Therefore, it is to mention that limited health literacy is significant, and it has a relationship with a low level of symptom control and medication management.

Symptom control refers to monitoring and identifying significant signs that help patients with asthma make suitable changes in their physical activity level and commence appropriate medication regimens (Global Initiative for Asthma, 2020). In Vietnam, only 40.4% of patients are known to have controlled asthma (Nguyen, Huynh, & Chevannes, 2018). Medication management involves self-adjustment of medication to respond to acute symptoms and changes in peak expiratory force. No doubt, adherence to treatment is essential to optimize the benefits of therapy (Sarker et al., 2020).

Studies related to health literacy, symptom control, and medication management in patients with asthma are limited in Vietnam. Therefore, this study was conducted to better understand these aspects in patients. Once the relationships are clarified, it will help understand the difference between what the patients currently do and what the ideal patients should do to manage their disease effectively. More significantly, it can promise an effective nursing strategy to improve symptom control and medication management for asthma adults using education strategies appropriate for populations with limited health literacy.

This study aimed to investigate the level of health literacy, symptom control, and medication management and determine the relationships among them in patients with asthma in Da Nang, Vietnam.

Methods

Study Design and Setting

This cross-sectional descriptive study was conducted among patients with asthma visiting the Internal Respiratory Clinic at C hospital located in central Vietnam city of Da Nang. The city is situated about 784 km from Hanoi's capital city and is inhabited by over a million people. C hospital is a central level hospital under the Ministry of Health with a 700-bed capacity (Da Nang Portal, 2020). This hospital was selected for the study because it is a general hospital located in the city center with a high patient flow, including patients with asthma. Around 200 patients visit the clinic for medical care and follow-up each month.

Participants

The target population of the study was patients diagnosed with asthma by a physician at the respiratory clinic. The participant's inclusion criteria were adults ≥ 18 years, diagnosed with asthma at least six months prior to the study, and able to communicate, read, and understand the Vietnamese language. Contrarily, the patients who were having cognitive impairment with a score lower than 24 points (out of 30) when measured by Mini-Mental State Examination (MMSE) Vietnamese version, a critical condition such as a sign of asthma attack (such as cough, dyspnoea, wheezing, chest tightness), and requiring emergency care, and unwillingness to participate in the study were excluded.

The sample size was estimated using a power analysis. The level of significance was set at 0.05 and the standard power at 0.80. As reported earlier, a small effect size of 0.28 was applied (Aberson, 2010). The estimated sample size was 76; upon an additional 10% drop-out rate, the final sample size increased to 84 participants.

The participants were selected by a simple random sampling technique from the list of outpatients visiting the hospital clinic. Next, the researcher assigned code numbers for each patient on a paper slip kept them into a box, mixed well, and selected 84 random numbers. Some of the selected patients did not attend the hospital clinic due to the COVID-19 pandemic. The researcher selected other participants repeating the steps described above.

Instruments

The tools used in the research were questionnaires in four parts, including Demographic form, The short-form health literacy questionnaire (HL-SF12), Asthma Control Test (ACT), and Medication Adherence Reporting Scale for Asthma (MARS-A). The questions on the demographic characteristics of participants, such as age, gender, education level, health insurance, occupation, income, duration of asthma, were developed by the researcher.

HL-SF12 was developed by Duong et al. (2019) based on the conceptual framework of the HLS-EU-Q47 (Sorensen et al., 2013). In brief, there are 12 items in four dimensions: assessing (items 1, 5, 9), understanding (items 2, 6, 10), appraising (3, 7, 11), and applying (items 4, 8, 12), which can further be categorized into three domains: health care HL (HC-HL), disease prevention HL (DP-HL), and health promotion HL (HP-HL). Each question was scored by a 4-point Likert-type rating scale (very difficult = 1 to very easy = 4). The mean score of specific health literacy indices was standardized on a metric between 0 and 50, using a formula described in HLS-EU Consortium (HLS-EU Consortium, 2012). Health literacy was then divided into levels as 0-25: inadequate, >25-33: problematic, >33-42: sufficient, and >42-50: excellent. The values of Cronbach's α and the goodness-of-fit index of the HL-SF12 in the general Vietnamese population were 0.87 and 0.97.

The Asthma Control Test (ACT) developed by Nathan et al. (2004) was used to measure symptoms for asthmatic

patients under the routine care of a specialist in this study. The ACT has also been reassessed for its reliability, efficacy, and responsiveness in patients not monitored by asthma experts (Schatz et al., 2006). Internal consistency reliability of the ACT was 0.85 (baseline) and 0.79 (follow-up). Test-retest reliability was 0.77. The questionnaire includes five items assessing asthma symptoms (daytime and nocturnal), use of rescue medications, the effect of asthma on daily functioning, and a patient's self-assessed level of asthma control past four weeks. Each item was measured in a 5-point Likert-type rating scale, a score ranging from 5 (poor control) to 25 (complete control) when a higher score indicates better symptom control. The total score of this scale is 25 and is divided into levels as 5–14: uncontrolled, 15–19: partially controlled, 20–25: controlled.

The Medication Adherence Reporting Scale for Asthma (MARS-A) was used to assess medication management in patients with asthma. The scale was developed relying on a generic version of MARS used to measure oral medication adherence (Cohen et al., 2009). The MARS-A is a 10-item tool with several desirable characteristics for assessing inhaled corticosteroid (ICS) use. The MARS-A included both generic and specific questions about medication. It also assesses medication use behaviors, including regular versus as-needed use and intentional versus unintentional non-adherence. The participants expressed their response for 10 statements with 5-point Likert scale ranging as following 1 = Always, 2 = Often, 3 = Sometimes, 4 = Rarely, 5 = Never. The participant who had higher mean scores for all items indicates better adherence. The mean score of the questionnaire ranges from 1 to 5. Participants with a mean MARS-A score equal to 4.5 or more were interpreted as having good adherence. The MARS has high inter-item reliability (Cronbach α = 0.85) and good test-retest reliability (r = 0.65; p < 0.001).

Permission to use the instruments in the current research was received from the original authors.

Instrument translation

The original instruments HL-SF12, the ACT, and the MARS in English were translated into the Vietnamese language. The translation process was conducted according to the translation method described earlier (Cha, Kim, & Erlen, 2007). In brief, the original instruments in the English version were independently translated into the Vietnamese language by two bilingual experts. Two Vietnamese versions were then compared and combined into one Vietnamese version. A third bilingual translator translated the Vietnamese version back into English. Finally, the back-translated English version was compared with the original version of the instrument by the researcher and a native English person to determine the linguistic unity among both versions.

Validity and reliability of instruments

The content validity of three instruments was validated by a panel of three experts, including a medical doctor specialized in asthma, a nurse lecturer with expertise in asthma, and a nurse with working experience in patients with asthma. The Content Validity Index for Items (I-CVI) of

each item of HL-SF12, ACT, and MARS-A was higher than 0.83, and I-CVI of the total score of each part for HL-SF12, ACT, and MARS-A were 0.97, 0.96, and 0.96, respectively. According to the report, the CVI higher than 0.79 percent indicates appropriateness (Abdollahpour, Nejat, Nouroozian, & Majdzadeh, 2010). The Vietnamese translated versions of HL-SF12, ACT, and MARS-A were tested for their internal consistency and reliabilities through a pilot study in a different set of 30 patients having similar characteristics. The Cronbach's α for each instrument recorded was 0.88 (HL-SF12), 0.88 (ACT), and 0.89 (MARS-A). According to the classification of Lakshmi and Mohideen (2013), Cronbach's α for three instruments was at an acceptable level.

Data Collection

Upon getting ethical clearance and approval from the hospital, data were collected by the researcher between 1 October to 15 November 2020. Initially, the researcher contacted and explained the objectives and procedures of the study to the head nurses and staff nurses and asked them to select participants who meet the study's criteria except for cognitive status. The selected participants were contacted by the head nurse to ask if they allow the researcher to contact for participation. Upon agreement, an appointment was set to meet at the clinic within a month. Next, on the day of the visit to the clinic, the researcher explained the objective, benefits, ethical issues, and human rights protection and invited the patients to participate in the research. On willingness to participate, the researcher requested to use MMSE for their cognitive status. Upon meeting the criteria (score of MMSE \geq 24), they were asked to sign a consent form. Then the questionnaire was provided to fill up, which took about 30 minutes. The researcher was around to explain any confusion, and when any missing data was found, participant's responses were confirmed before leaving. Participation in the study was voluntary, and they were free to refuse or withdraw without impacting the healthcare service they were receiving in the hospital. The researcher followed guidelines for Human Research during the COVID-19 outbreak issued by Khon Kaen University Thailand and the Ministry of Health of Vietnam during data collection.

Data Analysis

Data were analyzed by Statistical Package for Social Science (SPSS) version 23.0. Descriptive statistics, including frequency, percentage, range, mean, and standard deviation, were used to describe demographic characteristics, health literacy levels, asthma symptom control, and medication management. Pearson product-moment correlation was computed to explore the relationship between health literacy and symptom control, medication management. The Pearson analysis assumptions were tested, including normality of variables health literacy, symptom control, and medication management. All variables were normally distributed. The

strength of correlations was classified as $r > 0.50$ (strong relationship), $r \geq 0.30$ to 0.50 (moderate relationship) and $r > 0$ to 0.30 (weak relationship) (Grove, Burns, & Gray, 2013).

Ethical Consideration

The study was approved by the Ethical Committee of Human Research, Khon Keen University, Thailand (HE632191), and the Institutional Ethics Committee of Hue University of Medicine and Pharmacy, Vietnam (H2020/441). Furthermore, the research was authorized by C Hospital before instigation. All data collected was anonymous and was used only for research purposes.

Results

Characteristics of the Participants

The age of the participants in the study ranged from 21 to 87 years, with a mean age of 62 years ($SD = 13.43$). The percentage of female participants (53.57%) was higher when compared to males (46.43%). More than half of the participants (57.14%) were in the job retirement group, followed by the officer group (21.43%). The most common educational levels were college or higher, high school, and secondary school, with 34.52%, 32.14%, and 26.20 %. A total of 97.62 % of participants had health insurance, whereas income varied between 1 million VND and 30 million VND, with an average of 5.42 ($SD = 3.41$). The majority of participants (47.62 %) had asthma for five or more years (Table 1).

Table 1 Demographic characteristics of the study participants ($N = 84$)

Characteristic	Number		Percentage	
Age (years)	Mean = 62.67	SD = 13.43	Min = 21	Max = 87
Gender	Female	45		53.57
	Male	39		46.43
Education level	No school	0		0
	Primary school	6		7.14
	Secondary school	22		26.20
	High school	27		32.14
	College or higher	29		34.52
Occupation	Officer	18		21.43
	Housewife	9		10.72
	Small business	7		8.33
	Famer	2		2.38
	Retire	48		57.14
Income (million VND)	Mean = 5.42	SD = 3.41	Min = 1	Max = 30
Having health insurance	Yes	82		97.62
	No	2		2.38
Duration of asthma	6 months-1 year	6		7.14
	1-3 years	23		27.38
	3- 5 years	15		17.86
	≥ 5 years	40		47.62

Level of Health Literacy, Symptom Control, and Medication Management

The General – Health Literacy (GEN-HL) among the study participants ranged from 8.33 to 47.22 with a mean of 28.70 ($SD = 9.66$). Moreover, a mean score of three

domains of health literacy, including HC-HL, DP-HL, and HP-HL, was revealed to be 28.31 ($SD = 10.88$), 26.73 ($SD = 9.79$), and 31.25 ($SD = 11.62$), respectively. The mean score of health literacy was similar to general health literacy (Table 2).

Table 2 Domain of health literacy ($N = 84$)

The domain of health literacy	Mean \pm SD	Minimum	Maximum
General HL (GEN-HL)	28.70 \pm 9.66	8.33	47.22
Healthcare (HC-HL)	28.13 \pm 10.88	8.33	45.83
Disease prevention HL (DP-HL)	26.73 \pm 9.79	0	50
Health promotion HL (HP-HL)	31.25 \pm 11.62	4.17	50

Figure 1 shows that health literacy levels in four dimensions, namely inadequate, problematic, sufficient, excellent, were 35.72 %, 28.57%, 29.76%, and 5.95%, respectively. Limited health literacy (index of health literacy

≤ 33) of the participants was 64.29%. The disease-prevention domain was highest with 67.86%, whereas the health care and health promotion domains were quite similar, 53.57% and 54.77%.

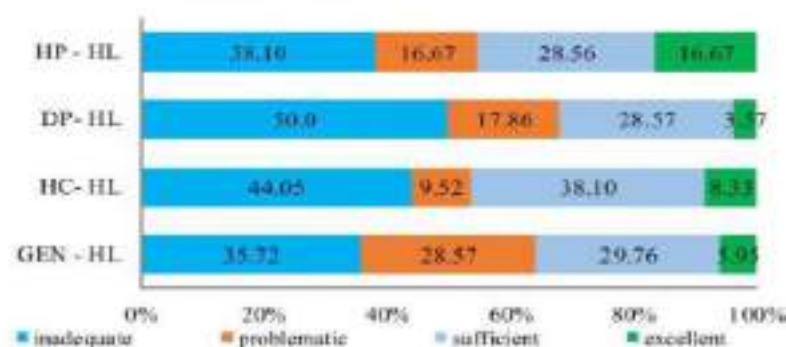


Figure 1 Level of health literacy index

The score of symptom control among respondents ranged from 8 to 26, with a mean of 17.72 ($SD = 4.67$). The participants who had controlled asthma were the highest with 39.29%. Moreover, the patients in the partially controlled group were higher than the uncontrolled group, 35.71% compared to 25.00%. Next, the mean score of medication management measured by the MARS-A was 3.63 ($SD = 0.75$). The majority of the participants (81%) had poor adherence to the medication. The percentage mentioning that *I only use it when I felt breathless* was highest (62.00%), followed by *I forgot to take it* (61.91%).

Furthermore, about half of patients who reported that they either used the ICS when needed, altered the dose, stopped taking it for a while were 54.77%, 52.38%, 51.19%, respectively. One-third of the participants reported that they decided to miss out on a dose (36.91%) or only used the ICS before performing something that might make them breathless (32.10%). The percentages of participants who reported that they tried to avoid using it and used it as a reserve if other treatment did not work were low, with 25% and 20.25%, respectively (Table 3).

Table 3 Patients' engagements in each action of poor adherence ($N = 84$)

MARS-A item	Always, Often, Sometimes (%)	Rarely (%)	Never (%)	Mean \pm SD
I only use it when I need it	54.77	33.33	11.90	3.07 \pm 1.22
I only use it when I feel breathless	62.00	19.00	19.00	3.14 \pm 1.24
I decide to miss out a dose	36.91	20.19	36.90	3.83 \pm 1.13
I try to avoid using it	25.00	23.00	51.20	4.21 \pm 0.93
I forget to take it	61.91	23.81	14.28	3.29 \pm 1.01
I alter the dose	52.38	22.62	25.00	3.56 \pm 1.05
I stop taking it for a while	51.19	21.43	27.38	3.58 \pm 1.08
I use it as a reserve if my other treatment doesn't work	20.25	33.33	46.42	4.16 \pm 0.96
I use it before doing something which might make me breathless	32.10	31.0	36.90	3.92 \pm 1.08
I take it less than instructed	55.95	19.05	25.00	3.46 \pm 1.12

Relationship between Health Literacy and Symptom Control, Health Literacy, and Medication Management

As shown in Table 4, there was a significant relationship between health literacy with symptom control and

medication management. The relationship with symptom control ($r = 0.41$), and medication management ($r = 0.44$) were moderately positive ($p < 0.001$).

Table 4 Relationship of health literacy with symptom control and medication management ($N = 84$)

Variable	Symptom control	Medication management	Health literacy
Symptom control	1.000		
Medication management	0.18	1.000	
Health literacy	0.41**	0.44**	1.000

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

Discussion

This study aimed to investigate the level of health literacy, symptom control, and medication management among

patients with asthma in Da Nang, Vietnam. The results revealed that the HL score in the patients was problematic (28.57%), which was similar to decade-old research in the country reporting the score of 29.70 ± 8.20 in participants

aged 66.9 years (Van Hoa, Giang, Vu, Van Tuyen, & Khue, 2020). Another report also revealed a low HL score in Vietnam when Taiwan had the highest level in Asian countries (Duong et al., 2019). The HL score of participants in this study was lower than in Europe (33.8 ± 8.0) (Sørensen et al., 2015). Moreover, the mean score of disease prevention HL was low (26.73 ± 9.79) in the study. This emphasizes the need to consider the effectiveness of disease prevention interventions in the community.

Limited health literacy (index of health literacy ≤ 33) of participants in this study was 64.29%. This result was similar (63.7%) to the study from the Northern Province of Vietnam in 2014 (Pham, 2014). However, the limited HL in this study was much higher than international findings. A survey among 353 asthmatic adults in Chicago showed 34.2% limited literacy skills (Curtis, Moore, Patton, O'Connor, & Nugent, 2018). This could be due to the age factor. More than half (57.1%) were retired from the job and were having difficulties accessing the medical information and understanding, appraising, and applying in the study. This finding demonstrated that the participants who have high limited HL might lead their health behavior to become poor in the future.

Moreover, the symptom control among the patients in the study was partially controlled. A total of 39.29% of participants had controlled asthma. When combined, the number of partially controlled and uncontrolled patients was 60.71%. These findings are similar to previous studies reported from Vietnam, Bangladesh, and Japan (Adachi et al., 2019; Mohammad, Kunsongkeit, & Masingboon, 2019; Nguyen et al., 2018). On the other hand, there are studies reporting a low level of controlled asthma (21–29.4%) than our study (Gebremariam et al., 2017; Tarraf et al., 2018). Our high scores could be due to many factors such as health insurance, duration of asthma, and education level of the patients. In the study, about 97.62% of participants had health insurance, nearly half of the participants had more than five years of asthma, and 66.66% were above high school education. More importantly, patients in the study were recruited from a central level hospital, and it has previously been shown that patients with asthma attended by a specialist doctor are more likely to manage better (Gebremariam et al., 2017).

There are no published studies evaluating medication management in asthmatic patients in Vietnam, and the findings in the study have identified existing problems. Only 19% of the participants had good medication management, with a mean MARS-A score of 3.63 ($SD = 0.75$). Similar to us, a study from Kuwait reported merely 17.4% of participants having good adherence to medicine (Albassam, Alharbi, & Awaisu, 2020). It is estimated that only one-third of patients with asthma in Saudi Arabia are poorly controlled (BinSaeed, 2015). Vietnamese people often have the habit of buying medicine by themselves without following the instructions of their doctors. In addition, policies on drug trading are not yet strict. Therefore, patients often do not take asthma controller medications as prescribed. Additionally, social distancing

and lockdown during data collection in the COVID-19 pandemic may have caused poor medication management in this study.

Of importance, health literacy was significantly related to symptom control. This relationship was positively moderate ($r = 0.41$, $p < 0.001$). Earlier, a study indicated that 14% of the children whose parents scored low HL had less controlled asthma compared with 30% of those who had adequate HL (OR: 2.66 (95% CI: 1.55–4.56)). This relationship remained significantly associated with health insurance and age (Krishnan, Rohman, Weiler, & Dozor, 2018). Limited HL has also been associated with increased symptoms, impaired function, significant health care use, and significant adverse outcomes in adults with asthma (Paasche-Orlow et al., 2005).

Furthermore, health literacy was significantly related to medication management. This relationship was positively moderate ($r = 0.44$, $p < 0.001$). Patients with low HL often have negative beliefs about asthma medications, such as not believing they need as many medications as their doctor prescribed or misconceptions about asthma medications. A report in 2015, including eight outpatients clinics in the USA, revealed that participants with limited HL were significantly associated with medication management (22.5% versus 46.4%, $p < 0.001$) (Federman et al., 2014). However, a meta-analysis study has shown that health literacy is positively and weakly associated with medication management ($r = 0.14$, 95% CI = 0.08, 0.19) (Miller, 2016).

The current findings imply that health policymakers and health care providers, especially nurses, should design and implement education programs on symptom control and medication management among patients with asthma to improve outcomes. Meanwhile, it is to mention that this study has some limitations. Firstly, as a cross-sectional descriptive study, data were collected only once, but the symptom control, medication management among patients with asthma may get changed. Secondly, the self-report questionnaire used may have caused the introspective ability and social desirability effect. Finally, because of the impact of the COVID-19 pandemic, the pulmonary function parameters such as forced exhalation volume in one second, peak expiratory flow were not measured in this study to assess the asthma classification, which in turn may have affected symptom control and medication management.

Conclusion

The study revealed that patients with asthma had limited HL, including partially controlled symptoms and poor adherence to medication in Vietnam. Moreover, a moderate positive relationship between health literacy and symptom and medication management was discovered. Health education programs based on the level of health literacy among patients are suggested. Additionally, a study with a large sample size, including participants from various parts of the country and predicting other significant

factors related to symptom control and medication management, is recommended.

Declaration of Conflicting Interests

The authors declare no conflict of interest in this study.

Funding

This research was funded by the Research and Training Center for Enhancing Quality of Life of Working-Age People and the Department of Student Development and Alumni Affairs at the Faculty of Nursing, Khon Kean University, Thailand.

Acknowledgment

The authors would like to express gratitude to the participants who volunteered in his research. We also would like to express deep thanks to the Research and Training Center for Enhancing Quality of Life of Working-Aged People and the Department of Student Development and Alumni Affairs at the Faculty of Nursing Khon Kean University for partial funding of this research.

Authors' Contribution

DTKC developed the research proposal, conducting data collection, data management, and analysis and drafting the manuscript. NM and HTTT supervised the proposal development, ethical approval process, questionnaire validation process, data collection, data management, and analysis. All authors have read and approved the final manuscript.

Authors' Biographies

Doan Thi Kim Cuc, RN is a Lecturer at the Faculty of Nursing, Da Nang University of Medical Technology and Pharmacy, Vietnam.

Nonglak Methakanjanasak, PhD is an Assistant Professor at the Faculty of Nursing, Khon Kaen University, Thailand.

Ho Thi Thuy Trang, PhD, RN is a Doctor at the Faculty of Nursing, Hue University of Medicine and Pharmacy, Hue University, Vietnam.

Data Availability Statement

The data that support the findings of this study are available on request from the authors. The data are not publicly available due to privacy or ethical restrictions.

References

- Abdollahpour, E., Nejat, S., Nouroozian, M., & Majdzadeh, R. (2010). The process of content validity in instrument development. *Iranian Epidemiology*, 6(4), 66-74.
- Aberson, C. L. (2010). *Applied power analysis for the behavioral sciences*. New York: Routledge Taylor & Francis Group.
- Adachi, M., Hozawa, S., Nishikawa, M., Yoshida, A., Jinai, T., & Tamura, G. (2019). Asthma control and quality of life in a real-life setting: A cross-sectional study of adult asthma patients in Japan (ACQUIRE-2). *Journal of Asthma*, 56(9), 1016-1025. <https://doi.org/10.1080/02770903.2018.1514628>
- Albassam, A., Alharbi, A., & Awaisu, A. (2020). Assessing adherence to inhaled corticosteroids among adults with asthma in Kuwait using the medication adherence report scale for asthma. *Patient Preference and Adherence*, 14, 963. <https://doi.org/10.2147/PPA.S248655>
- Alpaydin, A. O., Bora, M., Yorgancioglu, A., Coskun, A. S., & Celik, P. (2012). Asthma control test and asthma quality of life questionnaire association in adults. *Iranian Journal of Allergy, Asthma and Immunology*, 301-307.
- BinSaeed, A. A. (2015). Asthma control among adults in Saudi Arabia: Study of determinants. *Saudi Medical Journal*, 36(5), 599-604. <https://doi.org/10.15537/smj.2015.5.10929>
- Cha, E. S., Kim, K. H., & Erlen, J. A. (2007). Translation of scales in cross-cultural research: Issues and techniques. *Journal of Advanced Nursing*, 58(4), 386-395. <https://doi.org/10.1111/j.1365-2648.2007.04242.x>
- Cohen, J. L., Mann, D. M., Wisnivesky, J. P., Horne, R., Leventhal, H., Musumeci-Szabo, T. J., & Halm, E. A. (2009). Assessing the validity of self-reported medication adherence among inner-city asthmatic adults: The Medication Adherence Report Scale for Asthma. *Annals of Allergy, Asthma & Immunology*, 103(4), 325-331. [https://doi.org/10.1016/S1081-1206\(10\)60532-7](https://doi.org/10.1016/S1081-1206(10)60532-7)
- Curtis, A., Moore, Z., Patton, D., O'Connor, T., & Nugent, L. (2018). Does using a cellular mobile phone increase the risk of nosocomial infections in the Neonatal Intensive Care Unit: A systematic review. *Journal of Neonatal Nursing*, 24(5), 247-252. <https://doi.org/10.1016/j.jnn.2018.05.008>
- Da Nang Portal. (2020). Retrieved from http://www.danang.gov.vn/portal/page/portal/danang/chinhquyen/gioi_thieu/tong_qu_an_da_nang
- Duong, T. V., Nguyen, T. T. P., Pham, K. M., Nguyen, K. T., Giap, M. H., Tran, T. D. X., ... Su, C.-T. (2019). Validation of the short-form health literacy questionnaire (HLS-SF12) and its determinants among people living in rural areas in Vietnam. *International Journal of Environmental Research and Public Health*, 16(18), 3346. <https://doi.org/10.3390/ijerph16183346>
- Federman, A. D., Wolf, M. S., Sofianou, A., O'Connor, R., Martynenko, M., Halm, E. A., ... Wisnivesky, J. P. (2014). Asthma outcomes are poor among older adults with low health literacy. *Journal of Asthma*, 51(2), 162-167. <https://doi.org/10.3109/02770903.2013.852202>
- Gebremaniam, T. H., Binegdie, A. B., Mtiku, A. S., Ashagrie, A. W., Gebrehiwot, K. G., Huluka, D. K., ... Schluger, N. W. (2017). Level of asthma control and risk factors for poor asthma control among clinic patients seen at a Referral Hospital in Addis Ababa, Ethiopia. *BMC Research Notes*, 10(1), 1-8. <https://doi.org/10.1186/s13104-017-2887-z>
- Global Initiative for Asthma. (2020). Retrieved from <https://ginasthma.org>
- Grove, S. K., Burns, N., & Gray, J. (2013). *The practice of nursing research: Appraisal, synthesis, and generation of evidence* (7th ed.). St Louis, MO: Elsevier Saunders.
- HLS-EU Consortium. (2012). Comparative report of health literacy in eight EU member states: The European Health Literacy Project 2009-2012. Retrieved from <https://www.healthliteracyeurope.net/hls-eu>
- Krishnan, S., Rohman, A., Welter, J., & Dozor, A. J. (2018). Relationship between health literacy in parents and asthma control in their children: A prospective study in a diverse suburban population. *Pediatric Allergy, Immunology, and Pulmonology*, 31(4), 221-225. <https://doi.org/10.1089/ped.2018.0829>
- Lakshmi, S., & Mohideen, M. A. (2013). Issues in reliability and validity of research. *International Journal of Management Research and Reviews*, 3(4), 2752-2758.
- Lâm, H. T., Rönmark, E., Tüông, N. V., Ekerljung, L., Chùc, N. T. K., & Lundbäck, B. (2011). Increase in asthma and a high prevalence of bronchitis: Results from a population study among adults in urban and rural Vietnam. *Respiratory Medicine*, 105(2), 177-185. <https://doi.org/10.1016/j.rmed.2010.10.001>
- Lê, N. Q., Van Tran, T., Tran, T. T. M., Dang, N. T., Truong, Q.-K., & Vo, T. Q. (2019). The economic impact of asthma treatment on patients, 2014-2017: The Vietnamese experience from a public hospital. *JPMA: The Journal of the Pakistan Medical Association*, 69(6), S2-S9.

- Miller, T. A. (2010). Health literacy and adherence to medical treatment in chronic and acute illness: A meta-analysis. *Patient Education and Counseling*, 99(7), 1079-1086. <https://doi.org/10.1016/j.pec.2016.01.020>
- Mohammad, K., Kunsongkeit, W., & Masingboon, K. (2019). Factors related to self-care practice in asthmatic patients at rajshahi in Bangladesh. *Bangladesh Journal of Medical Science*, 18(1), 57-62. <https://doi.org/10.3328/bjms.v18i1.39549>
- Nathan, R. A., Sorkness, C. A., Kosinski, M., Schatz, M., Li, J. T., Marcus, P., ... Pendergraft, T. B. (2004). Development of the asthma control test: A survey for assessing asthma control. *Journal of Allergy and Clinical Immunology*, 113(1), 59-65. <https://doi.org/10.1016/j.jaci.2003.09.008>
- Nguyen, V. N., Huynh, T. T. H., & Chavannes, N. H. (2018). Knowledge on self-management and levels of asthma control among adult patients in Ho Chi Minh City, Vietnam. *International Journal of General Medicine*, 11, 81-89. <https://doi.org/10.2147/IJGM.S157050>
- Paasche-Orlow, M. K., Riekert, K. A., Bilderback, A., Chanmugam, A., Hill, P., Rand, C. S., ... Krishnan, J. A. (2005). Tailored education may reduce health literacy disparities in asthma self-management. *American Journal of Respiratory and Critical Care Medicine*, 172(8), 980-986. <https://doi.org/10.1164/rccm.200409-1291OC>
- Pham, M. K. (2014). *Health literacy survey in Haiphong City, Vietnam using validated version of HLS-Asia Questionnaire in Vietnamese*. Paper presented at the 2nd International Conference on Health Literacy, Haiphong Medical University, Vietnam.
- Sarker, M. A. S., Salma, U., Zafin, N., Kashem, M. A., Deb, S. R., & Kabir, A. K. M. H. (2020). Factors affecting the non-adherence to inhalational medication in bronchial asthma: A cross sectional study in a tertiary care hospital. *Journal of Medicine*, 21(1), 41-45. <https://doi.org/10.3328/jom.v21i1.44108>
- Schatz, M., Sorkness, C. A., Li, J. T., Marcus, P., Murray, J. J., Nathan, R. A., ... Jhingran, P. (2006). Asthma control test: Reliability, validity, and responsiveness in patients not previously followed by asthma specialists. *Journal of Allergy and Clinical Immunology*, 117(3), 549-550. <https://doi.org/10.1016/j.jaci.2006.01.011>
- Sorensen, K., Pelikan, J. M., Röthlin, F., Ganahl, K., Slonska, Z., Doyle, G., ... Utters, E. (2015). Health literacy in Europe: Comparative results of the European health literacy survey (HLS-EU). *European Journal of Public Health*, 25(6), 1053-1058. <https://doi.org/10.1093/eurpub/ckv043>
- Sorensen, K., Van den Broucke, S., Fullam, J., Doyle, G., Pelikan, J., Slonska, Z., & Brand, H. (2012). Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health*, 12(1), 1-13. <https://doi.org/10.1186/1471-2458-12-80>
- Sorensen, K., Van den Broucke, S., Pelikan, J. M., Fullam, J., Doyle, G., Slonska, Z., ... Brand, H. (2013). Measuring health literacy in populations: illuminating the design and development process of the European Health Literacy Survey Questionnaire (HLS-EU-Q). *BMC Public Health*, 13(1), 1-10. <https://doi.org/10.1186/1471-2458-13-948>
- Taraf, H., Al-Jahdali, H., Al Qaseer, A. H., Gjurovic, A., Haouichat, H., Khassawneh, B., ... Behbehani, N. (2018). Asthma control in adults in the Middle East and North Africa: Results from the ESMAA study. *Respiratory Medicine*, 138, 64-73. <https://doi.org/10.1016/j.rmed.2018.03.024>
- The Global Asthma Network. (2018). *The Global Asthma Report 2018*. Retrieved from http://globalasthma-report.org/Global%20Asthma%20Report%202018.pdf?fbclid=IwAR2TtINWzGSDFFPn5z1j-sWGOPVMT0IY_JRZEIAEKH0kgI03KAKyJnMKc
- Van Hoa, H., Giang, H. T., Vu, P. T., Van Tuyen, D., & Khue, P. M. (2020). Factors associated with health literacy among the elderly people in Vietnam. *BioMed Research International*, 2020. <https://doi.org/10.1155/2020/3490635>
- World Health Organization. (2019). Asthma. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/asthma>

Cite this article as: Kim Cuc, D. T., Methakanjanasak, N., & Thuy Trang, H. T. (2021). Relationships between symptom control, medication management, and health literacy of patients with asthma in Vietnam. *Beitang Nursing Journal*, 7(2), 131-138. <https://doi.org/10.33546/bnj.1398>

Violence against nurses: A serious issue in Indonesia

Beltung Nursing Journal
Volume 7(2), 139-140
© The Author(s) 2021
<https://doi.org/10.33546/bnj.1491>

Ramadhan Tosepu^{1*}, Hasanuddin Nuru², and Tri Hari Irfani³

Unfortunately, violence against nurses has just gone viral today in Indonesia. The violence occurred at Siloam Hospital Sriwijaya, Palembang City, on 15 April 2021, experienced by a nurse named Christina Ramauli Simatupang. Although violence against nurses or healthcare workers is not a new problem, it has always been a serious issue and should never be accepted as a part of the job. This letter prompts a discussion about the violence against the hospital nurse, and solutions to prevent and stop it are suggested.

Violence and Its Effects

Healthcare worker violence in the hospital setting is a growing issue worldwide (Ramacciati et al., 2018). It is like a silent epidemic that leads to the influence of productivity, job performance, and depression, or other health problems. The most healthcare worker suffered from this phenomena was nurses, and the main perpetrator is patients or their family and even nurses colleagues (Chang & Cho, 2016). Approximately 95.5% of the nurses, in a time frame of 12 months, were reported violence in the workplace (Ramacciati et al., 2018). In Indonesia, work-related violence among nurses is reported as physical assault, verbal violence, sexual harassment, intimidation, and the threat of a lawsuit perpetrated mostly by the patients and their families (Yosep et al., 2019).

Having seriousness of abusing to the nurse in Palembang city, Indonesia, lately is facing several problems. Physical assaults and verbal violence perpetrated by the patient's family towards the nurse affect mental health problems (Yosep et al., 2019). Mental health is the common stressor that leads to work-associated stress, which can convert into physiological distress among nurses, especially in the hospital (Yosep et al., 2021). In hospital-based collaboration, nurses need to maintain their

professional ability to work, maintain standards and continuously improve their standards of care. Physiological distress may have debilitating effects that reduce work output, increase absenteeism, and decrease professional ability (Gunawan et al., 2020). These problems require continuous monitoring and evaluation. Hospital management should have an intention to developing protections and mental health programs for the nurses.

Preventing and Stopping the Violence

Numerous studies postulated the factors why the violence remains to happen in the hospital setting, including environmental risk factors, low staffing levels, inadequate security personnel, and inappropriate policy and law (Hassankhani et al., 2018; Manton, 2017). The question is how to respond to this reality and minimize the problem.

Annual education or course is one of the best solutions to increase the knowledge of the nurses to prevent violence. However, it is not sufficient to resolve the issue, and this way should not be addressed to the nurse solely (Manton, 2017). Security guards, hospital staff, managers, and other health professionals should be involved (Hassankhani et al., 2018). Moreover, the personnel should promote the development of supportive and helpful strategies to improve communication and adaptive skills (Hassankhani et al., 2018).

In addition, in carrying out nursing service activities, nursing competency standards should be used, with the fundamental responsibility of the nurses, namely improving health, preventing disease, restoring, and reducing suffering (Ministry of Health, 2020). Furthermore, in the hospital services, all administrators should refer to Law Number 44 of 2009 concerning hospitals, which focuses on legal certainty and protection to improve, direct and provide

¹ Faculty of Public Health, University of Hali Oleo, Southeast Sulawesi, Indonesia

² Faculty of Health Science, Dehasen University, Indonesia

³ Department of Public Health and Community Medicine, Faculty of Medicine, Sriwijaya University, Palembang, Indonesia

Corresponding author:

Ramadhan Tosepu, Ph.D

Faculty of Public Health, University of Hali Oleo

Jl. H.E. Mokodompit, Anduonohu, Southeast Sulawesi, Indonesia

Email: ramadhan.tosepu@uho.ac.id

Article Info:

Received: 18 April 2021

Revised: 19 April 2021

Accepted: 19 April 2021

This is an **Open Access** article distributed under the terms of the **Creative Commons Attribution-NonCommercial 4.0 International License**, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2028-181X

a basis for hospital management (Government of Indonesia, 2009).

State policy in the form of laws in the health sector is a juridical basis that can serve as guidelines for the general public and healthcare workers. Legal protection, legal certainty, and legal justice for the community and healthcare workers are essential. With the existence of regulations in the health sector, the rights and obligations of healthcare workers and the community are protected, and there is legal certainty (Koswara, 2018). Legal protection and legal certainty for healthcare workers as health service providers is an opportunity and an encouragement to provide the best health services for people in every territory of the Republic of Indonesia. At this point, a nurse who becomes a victim deserves legal protection. Legal protection protects human rights that are harmed by others, and that protection is given to the community. This case can be included in Article 351, paragraph 1 of the Criminal Code concerning persecution (Handoko, 2018).

In conclusion, the acts of violence against nurses must be according to the prevailing laws and regulations. The perpetrators of the violence must be given the appropriate punishment, which can be a lesson for the community. Furthermore, the victims of the violence must be protected by legal and health protections.

Keywords

physical abuse; verbal abuse; violence; nurses; hospitals; criminals; mental health; Indonesia

Declaration of Conflicting Interest

The authors declare no conflicts of interest.

Funding

None.

Acknowledgment

The authors acknowledge Dr. Joko Gunawan for critically providing the feedback of the article.

Author Biographies

Ramadhan Tosepu, SKM., M.Kes., Ph.D is a Lecturer of the Public Health Faculty, Halu Oleo University, Indonesia. He is also the Head of the Department of Public Health, Postgraduate Study of the Halu Oleo University, Indonesia.

Hasanuddin Nuru, S.Kep., Ns., M.Kes., Ph.D is a Lecturer at the Faculty of Health Science, Dehasen University, Indonesia. He is also assigned as an Acting Head of Nursing and Midwifery Department and a Head of Education and Training Department in RSUD Daya Kota Makassar, Indonesia.

dr. Tri Hari Irfani, MPH is a Lecturer at the Department of Public Health and Community Medicine, Faculty of Medicine, Sriwijaya University, Palembang, Indonesia.

References

- Chang, H. E., & Cho, S.-H. (2016). Workplace violence and job outcomes of newly licensed nurses. *Asian Nursing Research*, 10(4), 271-276. <https://doi.org/10.1016/j.anr.2016.09.001>
- Government of Indonesia. (2009). *Law No 44 year 2009 concerning hospital*. Jakarta: Government of the Republic of Indonesia.
- Gunawan, J., Aungsucho, Y., Fisher, M. L., Marzilli, C., & Liu, Y. (2020). Factors related to the clinical competence of registered nurses: Systematic review and meta-analysis. *Journal of Nursing Scholarship*, 52(6), 623-633. <https://doi.org/10.1111/jnu.12594>
- Handoko, D. (2018). *Kitab undang-undang hukum pidana (Book of criminal law)*. Pekanbaru, Indonesia: Hawa dan AHWA.
- Hassankhani, H., Parizad, N., Gacki-Smith, J., Rahmani, A., & Mohammadi, E. (2018). The consequences of violence against nurses working in the emergency department: A qualitative study. *International Emergency Nursing*, 39, 20-25. <http://dx.doi.org/10.1016/j.ienj.2017.07.007>
- Koswara, I. Y. (2018). Perlindungan tenaga kesehatan dalam regulasi perspektif bidang kesehatan dihubungkan dengan undang-undang nomor 36 tahun 2009 tentang kesehatan dan sistem jaminan sosial [Protection of health workers in the perspective of the health sector is linked to law number 36 of 2009 concerning health and the social security system]. *Jurnal Hukum POSITUM*, 3(1), 1-18. <https://doi.org/10.35706/positum.v3i1.2663>
- Manton, A. (2017). The issue of violence in the emergency setting. *Journal of Emergency Nursing*, 43(6), 495-496. <https://doi.org/10.1016/j.jen.2017.09.012>
- Ministry of Health. (2020). *Ministry of Health Decree No HK.01.07/Menkes/425/2020 concerning nursing profession standard*. Jakarta, Indonesia: Ministry of Health of the Republic of Indonesia.
- Ramacciani, N., Ceccagnoli, A., Addey, B., Lumini, E., & Rasero, L. (2018). Violence towards emergency nurses: A narrative review of theories and frameworks. *International Emergency Nursing*, 39, 2-12. <https://doi.org/10.1016/j.ienj.2017.08.004>
- Yosep, I., Mediani, H., & Lindayani, L. (2021). Working alliance among mental health nurses in Indonesia: A comparative analysis of socio-demographic characteristics. *Beltung Nursing Journal*. <https://doi.org/10.33546/bnj.1259>
- Yosep, I., Mediani, H. S., Putit, Z., Hazmi, H., & Mardiyah, A. (2019). Mental health nurses' perspective of work-related violence in Indonesia: A qualitative study. *International Journal of Caring Sciences*, 12(3), 1871-1878.

Cite this article as: Tosepu, R., Nuru, H., & Irfani, T. H. (2021). Violence against nurses: A serious issue in Indonesia. *Beltung Nursing Journal*, 7(2), 139-140. <https://doi.org/10.33546/bnj.1491>