

2024

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Mohammed Munther AL-Hammouri
Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan, mmalhammouri@just.edu.jo

Jehad Rababah
Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan

Jorn Dormans
Center for International Cooperation, Vrije Universiteit Amsterdam

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Recommended Citation

AL-Hammouri, Mohammed Munther; Rababah, Jehad; and Dormans, Jorn (2024) "Informing Academia: Predictors of Decision Fatigue among Nursing Students," *Health Professions Education*: Vol. 10: Iss. 3, Article 10.

DOI: 10.55890/2452-3011.1291

Available at: <https://hpe.researchcommons.org/journal/vol10/iss3/10>

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ORIGINAL RESEARCH REPORTS

Informing Academia: Predictors of Decision Fatigue Among Nursing Students

Mohammed M. AL-Hammouri ^{a,*}, Jihad Rababah ^a, Jorn Dormans ^b

^a Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan

^b Center for International Cooperation, Vrije Universiteit Amsterdam, Netherlands

Abstract

Objectives: The academic life of health professions students, especially nursing, is highly demanding and involves frequent and sequential critical decisions, leading to decision fatigue (DF) and declining decision-making quality. While decision fatigue has been studied in other fields, its implications in health professions, especially nursing, are relatively new. This study aimed to identify predictors of decision fatigue among nursing students, focusing on behavioral, psychological, and spiritual aspects.

Methods: The current study employed a cross-sectional design, recruiting nursing students from three major public universities in Jordan via online surveys using valid and reliable measures.

Results: The data from 446 nursing students showed a significant negative association between decision fatigue and spiritual well-being, resilience, and meaning in life. Only resilience and spiritual well-being significantly predicted decision fatigue, explaining 36% of its variance.

Discussion: Educational institutions may be crucial in creating and supporting an academic environment promoting optimal decision-making. Faculty members in health profession schools can exemplify and advocate for resilience-building strategies to promote students' endurance and make frequent critical care decisions. In addition, this study underscores the importance of addressing the psychological and spiritual dimensions of nursing students well-being to mitigate the impact of decision fatigue.

Keywords: Decision fatigue, Resilience, Nursing students, Health professions

1. Introduction

The academic life of health professions students, especially nursing, is highly demanding and involves frequent and sequential critical decisions in the professional, personal, family, work, and collegial domains. These decisions require deliberate effort in collecting, analyzing, synthesizing, and evaluating these decisions. Considering the amount of decision and their complexity can have a depleting effect and lead to the inability to deal with all of these decisions effectively across time, situations, and persons (i.e., Decision Fatigue (DF)) [1]. DF refers to the ability of humans to make a limited number of high-quality decisions during a specific time frame [2]. Eventually, human beings' abilities will start to decline, leading to poor decision-making.

DF has been proposed to explain poor care-related decisions among health care professions students and nursing students across the day as they start to lose their ability to make effective decisions [3,4]. Some underlying explanations for the ineffective decisions were defaulting to the pattern of recognition, avoiding complexities, oversimplifications, taking shortcuts, putting off decisions, or acting impulsively [5]. While DF started to emerge recently as a concept in medical literature, the concept of DF is relatively new to nursing, with newly emerging recommendations to examine DF in terms of measurement, impact, and predictors as being essential areas to enhance clinical decision-making among nurses and nursing students [6].

Searching the literature for predictors of decision fatigue in healthcare professionals in general and

Received 19 March 2024; revised 31 July 2024; accepted 31 July 2024.
Available online 9 October 2024

* Corresponding author.

E-mail address: mmalhammouri@just.edu.jo (M.M. AL-Hammouri).

<https://doi.org/10.55890/2452-3011.1291>

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specific nursing students yielded no results. The literature in this area focuses on the impact of the DF on the quality of decisions across time and shifts [7]. The evidence also suggested no association between DF and general or cumulative workload [7]. In this context, while considering potential individual differences, examining potential predictors of DF among students in health professions looks crucial. This area of research will serve two important functions. First, it will help researchers, health professionals, schools, and health profession students understand DF more deeply as a generalized human phenomenon of special importance to healthcare settings. Second, it will provide evidence based on individual differences, helping us predict DF and manipulate associated factors, when possible, to promote and enhance safe academic and work settings for health professionals and patients alike, which would positively impact healthcare organizations.

A set of potential predictors were selected for the current study based on their association with similar phenomena from the literature. These variables are resilience, meaning in life, stress overload, and spiritual well-being. They have also been selected to represent behavioral, spiritual, and psychological aspects of students' daily lives, as explained below. Resilience refers to a learned behavior pattern that can be developed and learned through experience [8,9]. Resilience directly impacts persons' ability to deal with negative effects such as stress and burnout, which impact the quality of care [9,10]. Although resilience was not examined concerning the DF, the literature showed an association between resilience and other psychological and behavioral fatigue types, including compassion fatigue [11]. Resilience plays a crucial role in a student's academic achievements. In this context, it refers to how well a student can utilize available resources and tackle academic challenges that might otherwise hinder their success and affect the quality of care they provide [12].

Meaning in life is an important spiritual factor in persons' ability to cope with various life experiences [13]. It has also been associated with person's self-esteem when dealing with life and work situations for effective care [14]. Similarly, meaning in life was not examined concerning the DF. The literature showed an association between meaning in life and other psychological and behavioral fatigue types, including compassion fatigue [15]. Stress overload is another factor that greatly impacts healthcare professionals' performance due to work-related conditions and workload. Similar to the previous variables, stress overload was not examined in the

context of DF, but the evidence showed an association with stress overload, burnout, and compassion satisfaction among nurses [16].

Spiritual well-being has been associated with performance and work-related variables such as moral distress, stress, coping, and intent to leave [17,18]. Additionally, spiritual well-being has been associated with psychological and behavioral fatigue, including compassion fatigue [19]. The combination of these variables was selected to represent nurses' behavioral (resilience), spiritual (spiritual well-being and meaning in life), and psychological aspects (stress overload) as a starting point in this area. Thus, this study aimed to identify predictors of decision fatigue among nursing students, focusing on behavioral, psychological, and spiritual aspects.

2. Methods

2.1. Design and settings

Using an online survey, the current study used a cross-sectional design to recruit nursing from three major public universities from southern, central, and northern Jordan.

2.2. Sampling and participants

The present study used an online survey to recruit nursing students from three major public universities in Jordan. The participants were invited through direct invitations and online advertisements through social media. The inclusion criterion was being an actively enrolled nursing student at the institutions where our research was conducted. The study did not collect any identifiable data. The online survey clearly stated that completing and submitting the study questionnaires is considered informed consent for participation in the study. The online survey was open and available for nursing students for 3 months between June 2023 and September, 2023.

2.3. Measures

For the present investigation, a survey was designed to capture basic demographic information about our participants, including their gender and age. We utilized valid and reliable instruments to assess DF, resilience, meaning in life, stress overload, and spiritual well-being. The survey was administered in English.

2.3.1. Decision fatigue

Decision Fatigue Scale (DFS) was used in the current study to evaluate decision fatigue among

nurses. DFS is a 10-item unidimensional measure. Participants were asked to think about their feelings when making decisions over the past week and rate their agreement with statements on a scale from 0 (strongly disagree) to 3 (strongly agree) [20]. Total scores for the DFS are calculated by adding up these ratings, with scores ranging from 0 to 30. Higher scores suggest greater perceived decision fatigue [20]. The DFS showed good internal consistency of Cronbach's alpha above 0.87 [20]. The Cronbach's alpha of the DFS in the current study was 0.96.

2.3.2. Resilience

The current study assessed resilience using the Brief Resilience Scale (BRS). The BRS assesses how well someone can recover from stress and serious life events [21]. It has 6 questions. Questions 1, 3, and 5 are positively worded, while questions 2, 4, and 6 are negatively worded. To score the BRS, you reverse-score the answers for questions 2, 4, and 6, then find the average of all 6 answers. The scale goes from strongly disagree (1) to strongly agree (5). The reported Cronbach's alpha for the BRS was 0.71 [22]. The Cronbach's alpha of the BRS in the current study was 0.88.

2.3.3. Spiritual well-being

Spiritual well-being was assessed in the current study using the Spiritual Well-being Scale (SWBS) [23,24]. This widely used measure of spiritual well-being consists of 20 items. The response options for the scale range from strongly agree (6) to strongly disagree (1). The scale's total score is calculated as the sum of the responses to the 20 items. The following categories classify spiritual well-being: 20–40 reflects a sense of low overall spiritual well-being, 41–99 reflects a sense of moderate spiritual well-being, and 100–120 reflects a sense of high spiritual well-being. The psychometric properties of the SWBS are reported in the literature [23–25]. The Cronbach's alpha for the total scale (used in the current study) was 0.97.

2.3.4. Meaning in life

Meaning in life was assessed using The Meaning in Life Questionnaire (MLQ). MLQ uses 10 questions where they rate their feelings on a scale from 1 (absolutely untrue) to 7 (absolutely true) [26]. One part, called “Presence of Meaning,” looks at how much meaning they feel in their lives. The other part, called “Search for Meaning,” looks at how much they're trying to find or understand meaning in their lives. The presence of meaning in life is linked to feeling good and being open and

friendly. But searching for meaning can sometimes lead to dwelling on negative thoughts and feeling down, especially if you're stuck in the past or hopeless about the future [26]. The Cronbach's alpha of the MLQ subscales in the current study was above 0.79.

2.3.5. Stress overload

The stress overload level was measured using the Stress Overload Scale Short (SOS-S). This tool has two parts: Event load (E.L.), which gauges how much pressure is felt due to demands like responsibilities, and Personal Vulnerability (P.V.), which measures how equipped someone feels to handle those demands. Participants rated ten thoughts and feelings from the past week on a scale from 1 (not at all) to 5 (a lot) to complete the SOS-S, which usually takes less than 5 min. The total score, obtained by adding up the responses, indicates the level of stress overload, with higher scores meaning more stress [27]. The SOS-S has proven reliable, with a Cronbach's alpha of 0.81 [28]. In this study, the Cronbach's alpha was 0.96.

2.4. Data analysis

In this study, we used SPSS version 23 for data analysis. We followed a few important steps. First, we looked at descriptive statistics and frequency analysis to understand our sample better. Then, we checked how different variables in the study were related using Pearson correlations. We used multiple linear regression to achieve the purpose of the study. We made conclusions based on a significance level of $p < .05$ and provided 95 percent confidence intervals when necessary.

2.5. Ethical considerations

Before we started gathering information, we got approval from the Institutional Review Board (IRB). Trained research assistants who had done similar work before conducted the recruitment and data collection. They invited people to participate in the study, explaining what they would need to do and that participation was voluntary. They also told them about any potential risks and benefits and gave them the contact details of the main researcher in case they had any questions. If nurses agreed to participate, they were provided with the link to the survey to complete questionnaires. It's worth mentioning that participants could choose to leave the study at any time without facing any consequences. The data were only accessed by the primary investigator of the current study.

3. Results

3.1. Sample characteristics

A cohort of 446 nursing students completed the online survey. The average age of the participants within our study group stood at 21.1 years (SD = 1.21), ranging from 26 to 56 years. [Table 1](#) summarizes our sample characteristics.

The bivariate correlation results showed that DF had a significant negative correlation with spiritual well-being, resilience, meaning in life (presence of meaning), meaning in life (search for meaning), and stress overload. The bivariate analysis also showed that all other study variable pairs were positively and significantly correlated. The correlations ranged from weak positive to strong positive correlations ([Table 2](#)).

The results of the regression analysis with DF regressed onto spiritual well-being, resilience, meaning in life (presence of meaning), meaning in life (search for meaning), stress overload, and age and gender. The results showed that spiritual well-being and resilience were the only significant predictors of the DF ([Table 3](#)). The model explained about 36% of the variable in the DF ($F(2, 442) = 127.37, p < 0.001$). The significant contributing variables in the model were resilience and spiritual well-being (see [Table 3](#)). Meaning in life (presence of meaning), meaning in life (search for meaning), stress overload, age, and gender were excluded due to the lack of contribution to the model.

Table 1. Participants' characteristics (N = 446).

| Variable | n | ~Percentage |
|---------------------------------------|------|-------------|
| Sex | | |
| Male | 284 | 63.7 |
| Female | 162 | 36.3 |
| | M | SD |
| Age (years) | 21.1 | 1.21 |
| Spiritual Well-being | 85.0 | 29.9 |
| Meaning in Life (Presence of Meaning) | 22.5 | 7.1 |
| Meaning in Life (Search for Meaning) | 22.4 | 9.5 |
| Stress Overload | 24.5 | 11.4 |
| Resilience | 2.97 | 0.92 |
| Decision Fatigue | 13.4 | 7.4 |

Table 2. Bivariate correlations.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---------------------------------|-----|---------|---------|---------|---------|---------|
| Decision Fatigue (1) | 1 | −0.58** | −0.47** | −0.45** | −0.45** | −0.21** |
| Spiritual Well-being (2) | | 1 | 0.545** | 0.69** | 0.67** | 0.19** |
| Resilience (3) | | | 1 | 0.43** | 0.51** | 0.417** |
| Meaning in Life (Presence) (4) | | | | 1 | 0.86** | 0.19** |
| Meaning in Life (Searching) (5) | | | | | 1 | 0.30** |
| Stress Overload (6) | | | | | | 1 |

**p < 0.01.

Table 3. Regression model.

| Model Summary | R | R ² | F | df1 | df2 | p |
|----------------------|-------|----------------|--------|--------|-------|--------|
| | 0.61 | 0.37 | 127.37 | 2 | 442 | <0.001 |
| Predictor | Coeff | SE | t | p | LLCI | ULCI |
| Constant | 28.27 | 1.01 | 27.00 | <0.001 | 26.28 | 30.26 |
| Spiritual Well-being | −0.11 | 0.01 | −10.11 | <0.001 | −0.14 | −0.10 |
| Resilience | −1.76 | 0.36 | −4.87 | <0.001 | −2.47 | −1.05 |

LLCI: Lower Limit Confidence Interval; ULCI: Upper Limit Confidence Interval.

4. Discussion

Decision fatigue refers to declining decision-making quality and effectiveness as individuals face many decisions over time, eventually leading to poor decision-making outcomes. While it was studied in other fields, its implications in nursing have only recently gained attention. Thus, the present study aimed to explore the predictors of DF among nursing students, recognizing the critical impact of DF on the quality of care and the well-being of health professions students.

The current study sampled behavioral, spiritual, and psychological factors to predict DF. Our results showed that resilience and spiritual well-being emerged as significant predictors of DF, highlighting the importance of addressing not only the cognitive aspects of decision-making but also the psychological and spiritual dimensions to mitigate the effects of decision fatigue.

Although the combination of the variables examined in the current study was not previously explored in the literature, the results of the bivariate correlation were consistent with what one would expect based on their effect and impact on work-related factors. For example, the bivariate correlation showed that nurses with higher spiritual well-being tend to have lower decision fatigue. Similarly, spiritual well-being has been associated with lower psychological and behavioral fatigue, including compassion fatigue [19]. However, with the limited research in this area, a systematic replication is required to support the current study's findings.

A closer look at the regression analysis showed that the only significant contributors to the model

were resilience and spiritual well-being. The model of these two variables explained more than a third of the DF in nursing students in the current study. These two variables represent the behavioral and spiritual aspects and show the importance of these domains in decision-making in addition to the cognitive domain. A closer look at the resilience in our sample showed that 180 nursing students in the current sample (40.4%) showed low resilience. In comparison, 224 nursing students (51.3%) showed normal resilience, and only 37 nursing students (8.3%) showed high resilience [29].

Since resilience is a significant contributor to DF and can be learned and developed [9], these numbers indicate great room and opportunity for implementing appropriate intervention to promote resilience to minimize DF in nursing students and consequently promote quality care [4]. With over 40% of our sample showing low resilience, well-planned intervention can promote resilience and associated factors. Resilience-building interventions may, therefore, serve as effective strategies to mitigate decision fatigue among nursing students and encourage better decision-making outcomes.

Similarly, a look at spiritual well-being showed that 45 nursing students (10.1%) had low spiritual well-being, while 203 nursing students (45.5%) had moderate spiritual well-being, and 198 nursing students had high spiritual well-being (44.4%), indicating a great room to target spiritual well-being among nurses and promote any associated factors such as DF [30]. The negative correlation between DF and spiritual well-being underscores the role of spirituality in buffering the adverse effects of decision fatigue. Nursing students with higher levels of spiritual well-being may possess greater inner resources to cope with the demands of their profession, thus exhibiting lower levels of decision fatigue. This finding aligns with previous research indicating the beneficial effects of spirituality on healthcare professionals' well-being and performance. Special attention may be paid to this area as nurses' spirituality and spiritual care are often ignored in the literature and practice [31].

Contrary to expectations, other variables such as meaning in life (presence and search for meaning) and stress overload were excluded from our study sample's best-fit model by predicting DF. This suggests that while these factors may influence nursing students' overall well-being and job performance, their direct impact on decision fatigue may be less pronounced. Our study has several implications for clinical practice. Firstly, health schools should recognize the significance of addressing decision fatigue among their students and implement

strategies to promote resilience and spiritual well-being in the workplace. This could involve providing access to resources for spiritual support, offering resilience training programs, and fostering a supportive work environment conducive to staff well-being.

Secondly, our findings showed that decision fatigue might be affected by spirituality and resilience, which emphasizes the importance of adopting a holistic approach to nursing practice that considers the technical aspects of care and nursing students' psychological and spiritual needs. Although the aim of the current study was not to examine the holistic approach needed in nursing, the current study supports this long-held claim that it is important in healthcare professions. By attending to nursing students' spiritual and emotional well-being, health professions schools can enhance students' resilience and mitigate the detrimental effects of decision fatigue on patient care quality. One of the suggested is using role model by faculty members have the capacity to exemplify and advocate for resilience-building strategies [32].

4.1. Limitations

It is important to acknowledge certain limitations inherent in our methodology and analysis that could limit the generalizability of our findings. Firstly, using a cross-sectional design restricts our ability to infer causal relationships between the variables examined. While our findings offer insights into potential predictors of DF, longitudinal or experimental designs would provide stronger evidence of causality. Secondly, reliance on self-report measures introduces the possibility of response bias or social desirability bias, potentially affecting the accuracy of the data. Additionally, the sample, drawn from nursing students from nursing schools in three public universities in Jordan via online surveys, may not fully represent the diversity of healthcare settings.

Furthermore, the selected predictors, namely resilience, meaning in life, stress overload, and spiritual well-being, may not encompass all relevant factors influencing DF among nursing students. Despite these limitations, our study contributes to the growing literature on decision fatigue in nursing students. It underscores the importance of future research addressing these gaps to inform targeted interventions and enhance patient care outcomes.

5. Conclusion

The current study showed that among the study variables, resilience and spiritual well-being were

the only two significant contributors to the DF among nursing students, accounting for more than the third variance in DF. In conclusion, our study sheds light on the predictors of decision fatigue among nursing students and underscores the importance of addressing spiritual well-being and resilience in mitigating its impact. Health professions schools can foster a supportive work environment conducive to optimal decision-making and patient care outcomes by promoting nursing students' psychological and spiritual resilience. Future research should further explore the complex interplay between individual and organizational factors in influencing decision fatigue among health professions students.

Ethics approval

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of the Jordan University of Science and Technology (Date: 23/03/2023. No.: 29/158/2023).

Conflicts of interests

The author has no relevant financial or non-financial interests to disclose.

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