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Fatigue Severity and Psychological Well-Being of Junior Medical Interns as Mediated by Rumination

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Abstract. This study investigated the psychological well-being of junior medical interns in the Philippines as they transitioned from medical school to hospital clerkships. The research aimed to understand the mediating role of rumination in the relationship between fatigue severity and psychological well-being among these interns. A cross-sectional study was conducted across 33 medical schools in the Philippines, with 504 junior medical interns participating between May and September 2023. Participants completed questionnaires with demographic information and standardized scales measuring fatigue severity, rumination, and psychological well-being. The results showed that the interns experienced severe levels of fatigue (M = 45.90), moderate levels of psychological well-being (M = 57.56), and above-normal levels of rumination (M = 53.80). All three variables were significantly correlated with each other ($p < 0.01$). Mediation analysis revealed that rumination significantly mediated the relationship between fatigue severity and psychological well-being (B = 0.125, SE = 0.062, p = 0.045). These findings suggest that interventions targeting rumination may be beneficial in improving the psychological well-being of junior medical interns during their transition from medical school to hospital clerkships.

Keywords: Fatigue severity; Psychological well-being; Rumination; Mediation analysis; Junior Medical Interns.

1.0 Introduction

Medical students must render clerkship as part of their requirements to become licensed Doctors of Medicine. The clinical clerkship year refers to medical students' final phase of formal education (Capinpuyan & Miguel, 2019), during which they gain hands-on experience in hospital settings. During this time, students were deployed to various hospitals and assigned duties under the supervision and instruction of physician assistants, senior residents, and attending physicians. The clerkship year allowed medical students to perform clinical tasks and care for actual patients as part of consolidating their medical knowledge and training before graduation. It is the last phase of the basic training of the physician, and satisfactory completion of the 12-month clerkship/internship was a requirement for taking the Physician Licensure Exam (PLE) (Commission on Higher Education, 2016).

During their clinical clerkship year, medical students' time commitments varied as they rotated through different healthcare specialties and hospitals that offered services 24 hours a day, seven days a week. In the standard medical education model in the Philippines, teaching occurred primarily in a classroom or school setting for the first three years of the medical program. However, clinical education was conducted within hospital environments for the final two years. Thus, clerkship duty was a big adjustment for junior medical interns concerning their psychological well-being since their first three years were conducted in regular medical school and in the daytime.

Junior medical interns rendering their clerkships at matched hospitals experience lots of pressure. Numerous studies found that fatigue was prevalent among medical students and healthcare workers and caused negative impacts on them (O'Marr et al., 2022; Jezzini-Martinez et al., 2021; Kajjimu et al., 2021). The demands of internships or clerkships at hospitals also negatively affected the psychological well-being of junior medical interns, leading to stress (Zdun-Ryżewska et al., 2021), depression, and anxiety (Sagherian et al., 2023). Rumination has been established as a contributing factor to developing mental health issues among junior medical interns (Hong et al., 2021).

The study investigated the intricate relationship between fatigue severity, psychological well-being, and rumination among junior medical interns during their hospital clerkship. This research is crucial as it addresses the pressing issue of mental health among medical interns (Arrogante & Aparicio-Zaldivar, 2020), shedding light on the potential mediating role of rumination in the context of their psychological well-being. The paper presented the following sufficient reasons that supported the conduct of the study: (1) The relevance of this research problem is underscored by the existing literature, which has highlighted the challenges faced by medical interns, including high levels of fatigue (Alolabi et al., 2022) and potential psychological distress (Liu et al., 2020); (2) There is a need to fill the key research gap calling for further investigation into wellness programs and interventions to reduce student stress among junior medical interns, coping strategies specifically targeting rumination, and preventative measures for severe fatigue (Klein & McCarthy, 2022); and (3) Most importantly, the results would provide a construction of an intervention program to help junior medical interns adapt to the demands of clerkship, as well as to provide better clerkship programs offered by hospitals.

2.0 Methodology

2.1 Research Design

A cross-sectional study was conducted from May to September 2023.

2.2 Research Participants

Junior medical interns were selected at the time of the study. The inclusion criteria were: (1) medical students who were enrolled in one of the medical schools in the Philippines; (2) must be 24-28 years old; (3) doing their clerkship at their matched hospitals; and (3) voluntary participation in the survey. Exclusion criteria were (1) not enrolled during the time of the data gathering period, (2) interns that were not in their last year of medical study, and (3) incomplete or insufficiently answered questionnaires. Participation in the study is voluntary, and participants could exit the questionnaire should they feel uncomfortable. Informed consent was obtained from the participants before proceeding with the survey. The Data Privacy Act was also presented, and participants were thoroughly informed about these ethical principles during the survey's introduction, ensuring understanding and compliance with the Declaration of Helsinki.

2.3 Research Instrument

For the researchers to obtain the desired data from junior medical interns, the researcher of this study used an online questionnaire to collect the necessary demographic profile information from the respondents. The questionnaire consisted of the junior medical intern's profile (gender, age, medical school name, public/private hospital for clerkship, and duration of night shift hours). This was followed by a set of entirely standardized questionnaires consisting of the Fatigue Severity Scale (Krupp et al., 1989), the Psychological Well-Being (PWB) Scale (Ryff, 1989), and the Ruminative Responses Scale (Nolen-Hoeksema & Morrow, 1991).

The Fatigue Severity Scale (Krupp et al., 1989) consists of 9 items. Participants responded to statements along a 7-point Likert scale. FSS has also been confirmed in previous studies, and its test-retest reliability has been calculated as 0.78 to 0.95 (Hossein Pour et al., 2020), which is deemed excellent (Matheson, 2019). Further, it shows high degrees of internal consistency ($\alpha = 0.949$) (Rosti-Otajärvi et al., 2017). The minimum possible score is 9, and the maximum possible score is 63. A greater numerical score on the FSS indicates a higher level of fatigue severity, as reported by the individual. Scores of 36 or more indicate elevated levels of fatigue, wherein an FSS score of ≥ 36 (an average of ≥ 4 across the nine questions) can be labelled as severe fatigue. In contrast, mild/moderate fatigue is defined as FSS < 36 (Kamudon et al., 2021).

The 18-item Psychological Well-Being (PWB) (Ryff, 1989) scale was used, which employs a 7-point Likert response format. The study conducted by Lee, Sun, and Chiang (2019) showed that there was a statistically significant positive correlation found between perceived health and PWB scores ($r = 0.20$, $p < 0.001$). This provided evidence that the 18-item short-form PWB scale demonstrates acceptable criterion validity. Additionally, this study's 18-item questionnaire demonstrated high internal consistency, with a Cronbach's alpha reliability coefficient of 0.88. The PWB scale typically ranges from 18-126 total scores, with higher scores indicating greater well-being (Raziq et al., 2023).

The Ruminative Responses Scale (Nolen-Hoeksema & Morrow, 1991) Scale-Short Form is a four-point scale. It has demonstrated good internal consistency ($\alpha = 0.89$) and correlates strongly ($r = 0.62$) to depressed mood (Nolen-Hoeksema & Morrow, 1991). The lowest possible score is 22, and the highest possible score is 88. A higher score indicates a higher tendency to ruminate (Andersen et al., 2023).

2.4 Data Gathering

Data was collected using an online survey platform. The links to the online surveys were disseminated using social media platforms like Facebook, Twitter, LinkedIn, and Reddit. The researcher also asked for help from acquaintances, faculty, and clerkship coordinators from medical schools in disseminating the online surveys. The posts published on online platforms contained brief yet concise captions regarding the study. The entire survey had 54 items, including demographic questions, a Fatigue Severity Scale, a Ruminative Responses Scale, and a Psychological Well-Being (PWB) Scale, which can be answered for 10-15 minutes. Data were collected from May 18, 2023, to September 29, 2023. Lastly, the gathered data were scored and interpreted.

2.5 Data Analysis

The researcher employed IBM SPSS Statistics version 25 with a PROCESS macro ver. four extensions to analyze the data. The statistical methods utilized include descriptive statistics such as mean and standard deviation and correlation analysis through the Pearson-r coefficient. Further, a simple mediation analysis was carried out. The researcher utilized the kurtosis measure to evaluate the quantitative variables to detect any potential outliers in the data. The Kolmogorov-Smirnov and Shapiro-Wilk tests were also used to assess the normality of the data. The Variance Inflation Factor (VIF) was computed to check for multicollinearity.

The researchers used mean and standard deviation to analyze the level of fatigue severity through the Fatigue Severity Scale, level of psychological well-being through the 18-item Psychological Well-Being Scale, and level of rumination through the Ruminative Responses Scale-Short Form. The researchers employed Pearson's correlation coefficient (r) to examine the relationships between the three variables: (1) fatigue severity and psychological well-being, (2) fatigue severity and rumination, and (3) psychological well-being and rumination. PROCESS Macro, specifically simple mediation analysis, was performed to test whether rumination mediates the relationship between fatigue severity and the psychological well-being of medical interns during their night clerkship at hospitals.

2.6 Ethical consideration

Ethical considerations were of utmost importance in this study. The author obtained approval or Ethics Review Clearance Certification from the Research Ethics Board of Polytechnic University of the Philippines to ensure that all data collected were handled confidentially and that the study adhered to the prescribed ethical standards in research conduct. Informed consent was also gathered for every participant before proceeding with the study.

3.0 Results and Discussion

3.1 Participant's Sociodemographic Characteristics

The respondents of this study were individuals who had recently entered the medical field in internship roles. A total of 504 questionnaires were collected, as presented in Table 1. Specifically, the participants holding the role of junior medical interns – 306 females, 175 males and 23 preferred not to say – who are studying in medical schools in the Philippines with ages ranging from 24-28 years old: 68 respondents are 24 years old (13.49%); 111 are 25 years old (22.02%); 145 are 26 years old (28.77%); 111 are 27 years old (22.02%) and 69 are 28 years old (13.69%). They were chosen as the respondents due to the multiple adjustments they faced transitioning to their final year

at medical schools. These include being deployed and having their clerkships at matched hospitals with varying shifts. There were 369 (73.21%) junior medical interns matched to Private hospitals for their clerkship, and 135 (26.79%) matched to public hospitals.

Table 1. Sociodemographic profile of the overall sample

Variable	Frequency	Percentage
Gender		
Female	306	60.71%
Male	175	34.72%
I preferred not to say	23	4.57%
Age		
24	68	13.49%
25	111	22.02%
26	145	28.77%
27	111	22.02%
28	69	13.69%
Hospital		
Public	135	26.79%
Private	369	73.21%

3.2 Scores of Fatigue Severity, Psychological Well-Being, and Rumination

Table 2. Descriptive statistics of fatigue severity, psychological well-being, and rumination

Variables	Mean	SD	Interpretation
Fatigue Severity	45.90	6.88	Severe
Psychological Well-Being	57.56	9.21	Moderate
Rumination	53.80	12.7	Above Normal

In Table 2, junior medical interns reported a high level of fatigue, with a mean score ($M = 45.90$, $\sigma = 6.88$) indicating severe fatigue. This finding highlighted the significant fatigue during clerkship (Arnold & Rosemary, 2022). This suggested that fatigue during clerkship was a significant issue for healthcare professionals, including junior medical interns. In contrast, the interns demonstrated moderate levels ($M=57.56$, $\sigma = 9.21$) of psychological well-being, suggesting that while their basic psychological needs were met, there was room for improvement (Leong et al., 2020). It does not cause serious concerns, but it provides opportunities for targeted improvement efforts among junior medical interns. When it came to rumination, the interns exhibited above-normal levels ($M=53.80$, $\sigma = 12.72$), indicating a tendency towards repetitive negative thinking (Watkins & Roberts, 2020), which could disrupt daily functioning, impeding one's ability to engage effectively in work, social, or personal activities.

The results of this study have important implications for understanding and addressing the well-being of junior medical interns. The high levels of fatigue reported by interns underscore the need for interventions to reduce fatigue and promote effective stress management. The moderate levels of psychological well-being suggest that while interns may not be experiencing severe distress, there is room for improvement to enhance their overall well-being.

3.3 Correlations Among Fatigue Severity, Psychological Well-Being, and Rumination

As seen in Table 3, correlation analyses revealed significant relationships between the variables of interest. Fatigue severity was positively correlated with rumination ($r = 0.442$, $p<0.001$), indicating that higher fatigue levels were associated with increased rumination. A negative correlation was found between psychological well-being and rumination ($r= -0.122$, $p=0.007$), suggesting an inverse relationship. Additionally, fatigue severity was found to have a significant negative correlation with psychological well-being ($r = -0.118$, $p=0.010$), implying that increased fatigue was linked to lower psychological well-being.

The positive correlation between fatigue severity and rumination indicates that as fatigue increases, interns are more likely to engage in repetitive negative thinking (Weiher et al., 2022). This finding aligns with previous research and highlights the potential for rumination to exacerbate fatigue-related issues8. The negative correlation between psychological well-being and rumination further reinforces the idea that excessive rumination can be

detrimental to mental health (Arrivillaga et al., 2022). The significant negative correlation between fatigue severity and psychological well-being suggests that addressing fatigue may positively impact interns' overall well-being (Li et al., 2022). This finding adds to the growing body of literature emphasizing prioritizing fatigue management in healthcare settings (Cousin Cabrolier et al., 2023).

Table 3. Correlation between variables among junior medical interns (n=480).

Variables		1	2	3	4	5	6	7	8	9	10
Autonomy	Pearson Correlation	--									
	Sig. (2-tailed)	--									
Environmental Mastery	Pearson Correlation	.417**	--								
	Sig. (2-tailed)	0.000	--								
Personal Growth	Pearson Correlation	.432**	.369**	--							
	Sig. (2-tailed)	0.000	0.000	--							
Positive Relations with Others	Pearson Correlation	0.042	0.020	.144**	--						
	Sig. (2-tailed)	0.358	0.660	0.002	--						
Purpose in Life	Pearson Correlation	0.062	.147**	.123**	.337**	--					
	Sig. (2-tailed)	0.178	0.001	0.007	0.000	--					
Self-Acceptance	Pearson Correlation	.354**	.350**	.318**	.212**	.222**	--				
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	--				
Well-being	Pearson Correlation	.638**	.650**	.652**	.477**	.532**	.669**	--			
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	--			
Brooding	Pearson Correlation	-.218**	-.296**	-0.056	.296**	.130**	-0.064	-0.063	--		
	Sig. (2-tailed)	0.000	0.000	0.223	0.000	0.004	0.163	0.170	--		
Reflecting	Pearson Correlation	-.222**	-.274**	-.121**	.245**	0.088	-0.066	-.101*	.770**	--	
	Sig. (2-tailed)	0.000	0.000	0.008	0.000	0.054	0.146	0.026	0.000	--	
Depressive	Pearson Correlation	-.285**	-.337**	-.102*	.288**	0.076	-.115*	-.137**	.864**	.818**	--
	Sig. (2-tailed)	0.000	0.000	0.026	0.000	0.098	0.012	0.003	0.000	0.000	--
Rumination	Pearson Correlation	-.269**	-.331**	-.101*	.296**	.097*	-.097*	-.118**	.924**	.897**	.978**
	Sig. (2-tailed)	0.000	0.000	0.027	0.000	0.034	0.034	0.010	0.000	0.000	0.000

[1] **. Correlation is significant at the 0.01 level (2-tailed).
[2] *. Correlation is significant at the 0.05 level (2-tailed).

3.4 Test of Normality, Multicollinearity Analysis, and Mediation Analyses

The results of this study provided insights into the levels of fatigue severity, psychological well-being, and rumination among junior medical interns, as well as the relationships between these variables. The data analysis began with an assessment of normality using the Kolmogorov-Smirnov and Shapiro-Wilk tests. Initially, the study included 504 respondents. However, 24 respondents were removed during the analysis as their standard deviation (SD) values were less than 0.25. This reduction in the sample size resulted in a final sample size of 480 respondents. Removing these respondents was necessary to ensure that the data met the normality assumption required for some of the statistical analyses employed in this study.

This test was conducted using the variance inflation factor (VIF) and tolerance value. In the study, fatigue severity and rumination obtained VIF values of 1.243 and tolerance values of 0.804. Multicollinearity is present if the tolerance value is below 10% and the VIF is above 10 (Kim, 2019). In the data, the VIF value was less than 3, indicating no multicollinearity.

Mediation analyses further explored the role of rumination in the relationship between fatigue severity and psychological well-being. Rumination was found to partially mediate this relationship when considering the subdomains of brooding (B = 0.034, SE = 0.063, p = 0.588) and reflecting (B = 0.003, SE = 0.061, p = 0.963). However,

when examining depressive rumination, as seen in Figure 1, it fully mediates (B = 0.125, SE = 0.062, p = 0.045) the relationship between fatigue severity and psychological well-being.

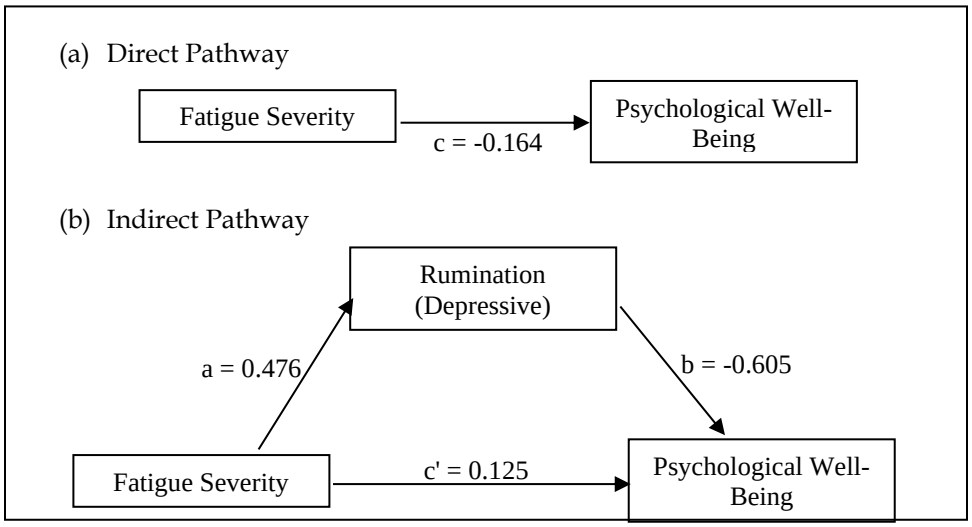

Figure 1. Mediation model depicting the (a) direct effect of fatigue severity and; (b) indirect effect of rumination (depressive) on psychological well-being; path coefficients (a, b, c, c′) are standardized regression coefficients; *statistically significant at p<0.01 level (two-tailed).

The mediation analyses provide insight into the complex relationship between fatigue severity, rumination, and psychological well-being. The partial mediation by brooding and reflecting rumination suggests that while these thought patterns play a role, other factors may also be in the relationship between fatigue and well-being (Gradiski et al., 2022). On the other hand, the full mediation by depressive rumination indicates that depressive thoughts account entirely for the relationship between fatigue severity and psychological well-being (Lei et al., 2017).

3.5 Proposed Program

Based on the results as seen in Table 4, can be proposed as a potential intervention program to enhance stress management skills, improve psychological well-being, and reduce rumination among medical interns. By providing workshops on stress management, time management, coping strategies, healthy lifestyle habits, sleep hygiene, and emotional regulation, the program offers comprehensive support for interns to enhance their well-being. This program can be delivered through in-person sessions, webinars, or self-paced online modules, catering to various learning preferences and logistical considerations. This ensures accessibility and flexibility to accommodate different learning preferences and schedules. The program implementation, evaluation, and follow-up components are designed to ensure the effectiveness and sustainability of the intervention. By collecting feedback, measuring changes in stress levels and rumination tendencies, and offering ongoing support beyond the workshops, the program aims to empower interns to manage their well-being effectively and create a healthier work environment.

The findings of this study provide valuable insights into the complex interplay between rumination, fatigue severity, and psychological well-being among junior medical interns. The observed relationship between rumination and lower psychological well-being, as well as higher health complaints, underscores the multifaceted impact of rumination on the overall health of medical interns (Hong et al., 2021). These results align with previous research (Sagherian et al., 2023), emphasizing the detrimental effects of prolonged rumination on psychological well-being and the potential for maladaptive coping strategies to develop (Weiher et al., 2022).

Table 4. Proposed intervention program Medical Intern Well-Being Workshop Series: Nurturing Resilience

Objectives:	Improve medical interns' stress management skills, enhance psychological well-being, and reduce rumination. By developing a comprehensive program that addresses stress management, self-care, and mindfulness techniques, interns will be well supported in managing their well-being more effectively, thereby promoting a healthier work environment.
Delivery Format:	Workshops, such as in-person sessions, webinars, or self-paced online modules, may be offered in various formats to accommodate different learning preferences and schedules. Peer support groups or mentorship programs may be incorporated, where interns can share experiences, provide support, and learn from each other.
Program Implementation:	Launch the program and promote intern participation through communication channels such as emails, posters, and social media. Ensure that workshops are facilitated by qualified mental health professionals or experts in the relevant areas.
Evaluation and Feedback:	Collect feedback from interns throughout the program to assess workshop effectiveness, satisfaction levels, and areas for improvement. Utilize pre- and post-workshop assessments to measure changes in interns' stress levels, coping skills, mindfulness, and rumination tendencies.
Follow-Up and Support:	Offer ongoing support and resources to interns beyond the workshops, such as access to mental health resources, self-help materials, or follow-up sessions. Encourage interns to incorporate the skills and strategies learned in the workshops into their daily lives and provide opportunities for continued practice and reinforcement.
Continuous Improvement:	Use evaluation findings to refine and improve the program, adapting content and delivery methods based on participant feedback and emerging research in stress management and mindfulness.
WORKSHOP SERIES	
Workshop 1: Understanding Stress and Building Resilience	• Introduction to stress: types, causes, and effects on well-being. • Identifying individual stressors: self-assessment and group discussion. • Introduction to resilience: the ability to bounce back from adversity. • Resilience-building exercises: reframing challenges, finding meaning, and fostering optimism.
Workshop 2: Time Management and Prioritization	• Importance of effective time management for stress reduction. • Techniques for prioritizing tasks and setting SMART goals. • Time management tools and apps: practical demonstrations and recommendations. • Creating a personalized time management plan: setting boundaries and managing distractions.
Workshop 3: Coping Skills and Stress Reduction Strategies	• Overview of coping mechanisms: problem-focused vs. emotion-focused coping. • Identifying and challenging negative thought patterns. • Coping strategies toolbox: relaxation techniques, deep breathing exercises, and progressive muscle relaxation. • Role-play exercises: practicing assertiveness and boundary-setting.
Workshop 4: Cultivating Healthy Lifestyle Habits	• The connection between physical health and mental well-being. • Importance of nutrition, exercise, and hydration for stress management. • Interactive cooking demonstration: preparing simple, nutritious meals. • Group exercise session: incorporating physical activity into daily routines.
Workshop 5: Mastering Sleep Hygiene	• Understanding the sleep-stress cycle and the importance of quality sleep. • Tips for improving sleep hygiene: creating a bedtime routine, optimizing sleep environment, and managing technology use. • Sleep tracking and assessment tools: evaluating sleep patterns and identifying areas for improvement. • Developing personalized sleep hygiene plans: setting goals and tracking progress.
Workshop 6: Self-Regulation and Emotional Regulation	• Exploring emotional regulation: recognizing and managing emotions effectively. • Techniques for self-regulation: mindfulness meditation, body scans, and grounding exercises. • Mindfulness-based stress reduction (MBSR) techniques: cultivating present-moment awareness and acceptance. • Practicing self-compassion: overcoming perfectionism and embracing imperfection.
Workshop 7: Overcoming Rumination and Enhancing Psychological Well-Being	• Understanding rumination: its impact on mental health and well-being. • Cognitive-behavioral techniques for challenging rumination and negative self-talk. • Mindfulness-based interventions for reducing rumination: mindfulness of thoughts and emotions. • Group discussion and sharing of strategies for promoting psychological well-being. • Reflecting on learning and insights gained from the workshop series.
Workshop 8: Integration and Action Planning	• Creating personalized self-care plans: setting short-term and long-term goals. • Identifying sources of support and accountability within the workplace and community. • Committing to ongoing self-care practices and strategies for maintaining resilience.
Timetable for Each Session:	
By following a schedule and timetable, participants can engage in a structured and interactive learning experience that supports their development of stress management skills, resilience, and well-being.	

Here is a schedule and timetable for the workshops, considering a series of eight sessions. Each session lasts approximately two hours, allowing for a balance between learning activities, discussions, and practical exercises. Adjustments can be made based on participants' availability and preferences.	
Introduction and Welcome (10 minutes)	• Introduction of facilitators and participants. • Overview of the session objectives and agenda.
Interactive Learning Activities (45-60 minutes)	• Presentation of key concepts, strategies, and techniques. • Group discussions, case studies, and interactive exercises.
Practical Exercises and Skill-Building (30-45 minutes)	• Guided practice of skills and techniques introduced. • Role-play activities, mindfulness exercises, or hands-on demonstrations.
Reflection and Discussion (15-30 minutes)	• Group reflection on learning experiences and insights gained. • Sharing of personal experiences, challenges, and successes.
Action Planning and Wrap-Up (10 minutes)	• Setting individual or group goals for applying learning. • Review of key takeaways and resources for further exploration.
Follow-Up and Support	• Encouragement to apply learning in daily life. • Availability of facilitators for questions and additional support. • Information on follow-up sessions or resources for ongoing support.

Moreover, the study's identification of rumination as a mediator in the relationship between fatigue severity and psychological well-being highlights the interconnected nature of these variables. This suggests that interventions targeting rumination may improve psychological resilience and contribute to reducing fatigue and enhancing sleep quality among individuals experiencing fatigue-related challenges. The implications of these findings extend beyond the context of junior medical interns, offering potential insights into the broader management of fatigue and psychological well-being in clinical settings.

In light of these findings, it is imperative to consider the broader implications for medical education and healthcare institutions. The study's recommendation to promote the psychological well-being of junior medical interns during clerkship aligns with the growing recognition of the need for comprehensive support systems within medical training programs. By integrating targeted interventions and wellness initiatives, medical schools and hospitals can play a pivotal role in fostering the mental well-being of future healthcare professionals.

It is also important to acknowledge certain limitations of the present study, which lay principally in the online collection of data that may have resulted in participants easily tampering with their responses to the survey. The study employed a non-probability purposive sampling approach to recruit participants, which presented limitations in generalizing the research findings. The scope of targeting all medical interns across the whole of the Philippines posed a limitation, as an unknown proportion of the total junior medical intern population may not have been included. This lack of representation of the entire target population meant the results may not have been fully generalizable. A bigger sample size from a sampling frame that more comprehensively represented medical interns nationwide would have helped address this limitation. Further research utilizing larger, more representative study samples was recommended to validate and expand on the present study's findings, which may have had limited generalizability due to aspects of the target population not being fully captured.

4.0 Conclusion

This study explored the interrelationships between fatigue severity, psychological well-being, and rumination among junior medical interns. The following conclusions are drawn from the data analysis: Firstly, junior medical interns experience severe levels of fatigue, indicating a need for interventions to reduce exhaustion during their clerkship. Secondly, interns' psychological well-being is moderate, suggesting room for improvement to enhance their resilience and life satisfaction. Thirdly, rumination levels are above normal, highlighting a tendency towards repetitive negative thinking.

The study revealed significant relationships between these variables. Fatigue severity negatively impacts psychological well-being, and a positive correlation exists between fatigue and rumination. Additionally, rumination was found to mediate the relationship between fatigue and well-being, with depressive rumination playing a full mediating role. In conclusion, addressing fatigue, rumination, and psychological well-being among junior medical interns is crucial. The proposed intervention program aims to provide interns with the tools for effective energy management, reduced rumination and enhanced overall well-being. Implementing such initiatives can foster resilience and long-term mental health during their clerkship.

The study identified and addressed a key research gap by focusing on the well-being of junior medical interns and the need for interventions to reduce their stress levels, specifically targeting rumination and severe fatigue. This is crucial as existing literature has highlighted the challenges faced by medical interns, such as high levels of fatigue and potential psychological distress. The study also acknowledged its limitations, such as online data collection and non-probability sampling. It recommends future research with larger and more representative samples to validate and expand on the findings. Building on the recommendation to promote the psychological well-being of junior medical interns, future research could focus on developing and implementing targeted interventions and support systems within medical training programs. This could involve integrating wellness initiatives, providing facilitators for questions and support, and offering follow-up sessions or resources for ongoing support.

5.0 Contributions of Authors

The authors confirm the equal contribution in each part of this work. All authors reviewed and approved the final version of this work. Kristyl Joyce V. Pascubillo – Methodology, Investigation, Writing – Original Draft, Visualization, Project administration. Geraldine F. Santos – Conceptualization, Formal Analysis, Writing – Review & Editing, Supervision

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7.0 Conflict of Interests

All authors declare that they have no conflicts of interest.

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