A correlational study of burnout, compassion fatigue, and moral injury related to resilience of nurses in COVID-19 wards of a public hospital in Metro Manila

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Abstract

Introduction Increased healthcare demands due to the COVID-19 pandemic have overwhelmed nurses worldwide. Resilience of nurses has been impacted due to many factors (e.g., longer work shifts) causing psychological distress. The study aimed to determine the correlation of burnout, compassion fatigue, and moral injury with resilience among nurses assigned in COVID-19 wards.

Methods Virtual survey tools were sent to nurses of a public hospital to obtain data. Data were analyzed using JAMOVI and SPSS.

Results Levels of burnout showed moderate burnout in personal burnout (f=44) (65.7%); Moderate burnout in work-telated burnout (f=36) (53.7%); no/low level of burnout in client-related burnout (f=48) (71.6%). Level of compassion fatigue showed job burnout (f=59) (88.1%). Level of moral injury indicated "requiring clinical attention" (f=52) (77.6%). Level of resilience showed medium resilience (f=45) (67.2%). Correlation between burnout and resilience yielded negligible negative correlations between personal burnout and resilience (r=-0.160, p=0.031), work-related burnout and resilience (r=-0.222, p=0.008), and client-related burnout and resilience (r=-0.120, p=0.741). Correlation yielded weak negative correlations between compassion fatigue and resilience (r=-0.254, p=0.038) and between moral injury and resilience (r=-0.318, p=0.009). The linear regression showed no significant correlations between personal burnout and resilience (p=0.063), work-related burnout and resilience (p=0.070), client-related burnout and resilience (p=0.331), compassion fatigue and resilience (p=0.080), moral injury and resilience (p=0.227).

Conclusion The findings showed significant correlations between personal burnout and resilience, work-related burnout and resilience, compassion fatigue and resilience, and moral injury and resilience. There were no significant correlations between client-related burnout and resilience. Multiple linear regression indicated burnout, compassion fatigue, and moral injury are not predictive factors for resilience.

Key words: Resilience, burnout, compassion fatigue, moral injury

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The COVID-19 pandemic has resulted in major healthcare crises in many countries leading to psychological stress among health care workers (HCW).[1] At the time of the study, there were 2,698,232 COVID-19 cases in the Philippines of which 26,566 were HCWs. There were 106 (0.4%) deaths among HWCs and 228 (0.9%) remained as active cases. According to a study, nurses are more likely to contract COVID compared to other HCWs due to their direct and frequent contact with their clients.[2] With the outbreak of the delta variant, it has also aggravated the lack of staff and inadequate nurse-patient ratio.[3]

A meta-analysis showed that HCWs experienced stress (40%), anxiety (28%), burnout (28%), depression (28%), and posttraumatic stress (13%).[4] These are due to a variety of factors, such as extended hours in their shifts to cater the greater demands of healthcare during the pandemic. More psychological issues among HCWs have been shown to be triggered by inadequate support from the public, government, and administration, diminished sleep, prolonged separation from families and friends, the fear of transmitting COVID-19 to relatives and colleagues, and being in close proximity to patients in COVID-19 wards.[5] Factors such as high transmission of COVID-19, lack of mass testing, scarcity of personal protective equipment and supplies for healthcare professionals, and perceptions in the community have also added to their stress.[6] The whole situation has put HCWs, especially nurses, at a higher risk of experiencing burnout, compassion fatigue, and moral injury.

Burnout among nurses in 49 countries was at 11.2 percent and was associated with sociodemographic (age, sex, educational level, degree), social (perceived threat of COVID), and occupational (high-risk environment) factors.[7] Compassion fatigue is closely related to burnout as it involves depersonalization, worn-out emotional states, and an absent feeling of self-fulfillment. The protracted pandemic, forcing HCWs and nurses to provide care for a long period of time has placed them at risk for developing compassion fatigue.[8] Nurses who have witnessed firsthand the agony and torment of their patients and co-workers may develop moral injury. A study revealed that nurses have been shown to be negatively influenced by personal views that their institutional guidelines were unfair, and their supervisors acted and continued to act unjustly towards them.[9] A previous study found that nurses' ability to cope with psychological threats was determined by their resilience.[10] Resilience was found to be an important mediator in reducing the negative impact of burnout, compassion fatigue, and moral injury, such as the nurses' capacity to deliver their nursing interventions.[11]

The study aimed to determine the correlation of burnout, compassion fatigue, and moral injury with resilience among nurses assigned in COVID-19 wards of a public hospital in Metro Manila.

Methods

The study utilized a descriptive correlational design to describe and examine the correlation between and among burnout, compassion fatigue, and moral injury as independent variables and resilience as dependent variable. The study was conducted at a COVID-19 referral center public hospital in Metro Manila with the capacity to accommodate up to 116 patients. The staff consisted of 84 nurses who went on 12-hour shifts. Participants were selected by convenience sampling and those who agreed to participate and gave their informed consent were asked to answer the Copenhagen Burnout Inventory, Compassion Fatigue Short Scale, Moral Injury Symptom Scale-Health Professional Version, and the Brief Resilience Scale.[12-15] The study was approved by the UERMMMCI Research Institute for Health Sciences Ethics Review Committee (RIHS ERC Code 1189/C/2021/269, approved April 18, 2022).

The eligible participants for the study were regular and full-time nurses who had worked or were currently working for at least six months in the COVID-19 wards of the identified hospital. Additionally, they needed to be willing to participate in the study and have the ability to read and communicate in English. Participants who had COVID-19 or any physical or mental health condition were excluded from the study. Additionally, nurses who requested to discontinue filling up the survey questionnaires were withdrawn from the analysis. The sample size of 67 respondents was determined using G*Power software, with the following parameters: a confidence level (α) of 0.05 (95% confidence level) and a statistical power of 0.75. There were four assessment instruments utilized in this study - Copenhagen Burnout Inventory (CBI), Compassion Fatigue Short Scale (CF-Short Scale), Moral Injury Symptom Scale-Health Professional (MISS-HP) Version, and Brief Resilience Scale (BRS).[12-15] The researchers secured permission from the authors of these assessment instruments to utilize their questionnaires. The Copenhagen Burnout Inventory (CBI) is a 19-item instrument using a 5-point Likert scale that measures burnout in three dimensions or subscales: personal, work-related, and client-related burnout.[12] From always = 100 to never = 0, the response items are graded on a scale of 100, 75, 50, 25, and 0. The items within a subscale are averaged. The total score is the average of the scores on the items. Burnout is classified as low (< 50), moderate (50 to 74), high (75 to 99), and severe (100). The lower scores indicate a lower level of burnout. If less than

three questions were answered, the respondent was classified as non-responder.

The Compassion Fatigue Short Scale (CF-Short Scale) is a 13-item questionnaire that consists of the following domains: an 8-item burnout subscale and a 5-item secondary trauma subscale.[13] Each item is scored on a 10-point Likert scale (1 = rarely/never to 10 = very often). The scores may range from 13 to 130; a higher score denotes a higher level of compassion fatigue. A score of 15+ suggests that vicarious trauma may be present. A score of 30+ suggests that job burnout may be present.

The Moral Injury Symptom Scale: Healthcare Professionals Version (MISS-HP) is a 10-item questionnaire that assesses the 10 dimensions/ domains of MI: betrayal, guilt, shame, moral concerns, loss of trust, loss of meaning, difficulty forgiving, self-condemnation, religious struggle, and loss of religious faith.[14] MISS-HP provides visual analogues using a 10-point Likert scale ranging from 1 ("strongly disagree") to 10 ("strongly disagree") which will indicate how the respondent personally agrees or disagrees with each statement. All 10 items will create a total score ranging from 10 to 100; the higher the score, the greater the MI. Four items are scored reversely because of their positive wordings. Scores of 36 or higher are interpreted as an indication of MI symptoms causing moderate to extreme problems with family, social, and occupational functioning, and therefore require clinical attention.

The Brief Resilience Scale (BRS) is a 6-item questionnaire using a 5-point Likert scale which includes both positively and negatively worded items and was created to assess a unitary construct of resilience.[15] Positively worded items 1, 3, and 5 are contrasted with negatively worded items 2, 4, and 6. The BRS is scored by computing the mean of the six items. For the scoring, the responses are added varying from 1-5 for all six items giving a range from 6 to 30. The total is then divided by the total number of questions answered. Resilience is classified as very high (30-28), high (27-24), medium (23-18), low (17-13), and very low (12-6).

The scores from the four questionnaires of each respondent were encoded in Excel. The frequency distribution, mean, and standard deviation of scores per assessment tool were computed. Pearson correlation coefficient (r) was used to determine the correlation of three pairs of continuous variables: burnout and resilience, compassion fatigue and resilience, and moral injury and resilience. The predictive factor between one dependent continuous variable and two or more independent continuous variables, as well as the value of the dependent variable at a given value of the independent variable, was determined using multiple linear regression analysis. The coefficient of determination (r^2) was computed to determine the dependent variable's proportion of variance that the independent variable could explain; it estimated the relationship between movements of the dependent variable based on an independent variable. SPSS was used for the statistical analysis.

Results

Table 1 shows that 83.6% of 67 respondents had moderate to severe personal burnout, 73.1% had work-related burnout and 28.4% had client-related burnout. The mean scores for personal (61.1) and work-related burnout (57.2) were in the moderate level while that for client-related burnout was in the low level (39.3). Almost 9 of 10 respondents had compassion fatigue indicating job burnout and the rest had vicarious trauma. More than three-fourths of respondents had moral injury requiring clinical attention. Eight out of 10 participants had medium to high resilience while 16.4% had very low to low resilience. The mean resilience score was 3.4 (medium resilience).

Table 1 shows the levels of burnout, compassion fatigue, moral injury and resilience of nurses in the COVID-19 wards of a public hospital in Metro Manila. Level of burnout of COVID-19 ward nurses was determined by using the Copenhagen Burnout Inventory. Majority of nurses (65.7%) experienced moderate burnout under personal burnout; 53.7% experienced moderate burnout under work-related burnout; and, 71.6% experienced little to no burnout under client-related burnout.

Table 2 shows Pearson's correlation analysis for the following variables: burnout, compassion fatigue, and moral injury to resilience of nurses in the COVID-19 wards of a public hospital in Metro Manila. In three subscales of CBI, Pearson's r correlation coefficient identified negligible negative correlation between personal burnout and resilience ($r = -0.160$, $p = 0.031$), work-related burnout and resilience ($r=-0.222$, $p=0.008$), client-related and resilience ($r=-0.120$, $p=0.741$). The p-values for personal and work-related burnout rejected the null hypotheses, indicating there

Table 1. Levels of burnout, compassion fatigue, moral injury and resilience of burses in COVID-19 Wards.

Variables	Score	Interpretation	*f*	%	x̄	SD
Personal Burnout	100	Severe Level	1	1.5%	61.1	14.93
	75-99	High Level	11	16.4%		
	50-74.99	Moderate Level	44	65.7%		
	< 50	No/Low Level	11	16.4%		
Work-related Burnout	100	Severe Level	0	0.0%	57.2	17.44
	75-99	High Level	13	19.4%		
	50-74.99	Moderate Level	36	53.7%		
	< 50	No/Low Level	18	26.9%		
Client-Related Burnout	100	Severe Level	0	0.0%	39.3	16.48
	75-99	High Level	1	1.5%		
	50-74.99	Moderate Level	18	26.9%		
	< 50	No/Low Level	48	71.6%		
Compassion Fatigue	> 30	Indicates Job Burnout	59	88.1%	56.8	22.74
	15-29	Indicates Vicarious Trauma	8	11.9%		
Moral Injury	36-100	Requires Clinical Attention	52	77.6%	47.5	13.74
	10-35	Low Level	15	22.4%		
Resilience	5.0-4.67	Very High	0	0.0%	3.4	0.56
	4.50-4.00	High	11	16.4%		
	3.83-3.00	Medium	45	67.2%		
	2.83-2.17	Low	9	13.4%		
	2.00-1.00	Very low	2	3.0%		

is a significant correlation. Meanwhile, the p-value ($p = 0.741$) for client-related burnout accepted the null hypothesis, implying no significant association or correlation between client-related burnout and resilience. Table 2 shows that personal ($r = -0.160$, $p = 0.003$), work-related ($r = -0.222$, $p = 0.008$), and client-related burnout($r = -0.120$, $p = 0.741$) had a negligible negative correlation with resilience.

Table 3 shows the linear regression analysis of burnout, compassion fatigue, and moral injury as predictive factors towards resilience of nurses in the COVID-19 wards of a public hospital in Metro Manila.

For the linear regression analysis of personal burnout and resilience, there was no significant correlation found between the two variables personal burnout and resilience ($p = 0.063$). This indicates that personal burnout was not a predictive factor of resilience. Specifically, results showed 0.009% decrease (regression coefficient = -0.009) in resilience for every one percent increase in personal burnout. Standard error of 0.005 showed how much variation there was around the estimates of the regression coefficient. For its regression statistics, the multiple R that calculates the quality of the prediction of the dependent variable (resilience), was determined to be 0.229. Meanwhile, R^2 value was 0.052, which indicates that the independent variable (personal burnout) explained 5.2% of the variability of the dependent variable (resilience). For the adjusted R^2, the value shown was 0.038; this lower adjusted R^2 meant additional variables were not providing any value to the regression model. Lastly, it had a standard error of 0.550, which was a measure of how far the data points deviated from the regression line on average. The spread of data values to the regression line decreased as the standard error decreased.

For the linear regression analysis of work-related burnout and resilience, there was no significant correlation between work-related burnout and resilience ($p = 0.063$). Work-related burnout is therefore not a predictive factor of resilience. Specifically, results showed 0.007% decrease (regression coeffiecient = -0.007) in resilience for every one percent increase in work-related burnout. Standard error of 0.003 showed how much variation

Table 2. Pearson's correlation coefficient analysis of burnout (personal burnout, work-related burnout, client-related burnout), compassion fatigue and moral injury related to resilience of nurses in COVID-19 wards.

Variables	Pearson's *r*	Interpretation	*p*	Decision	Interpretation
Personal Burnout - Resilience	-0.160	Negligible negative correlation	0.0031	Reject Ho_1	There is a significant relationship
Work-Related Burnout - Resilience	-0.222	Negligible negative correlation	0.008	Reject Ho_1	There is a significant relationship
Client-Related Burnout - Resilience	-0.120	Negligible negative correlation	0.741	Accept Ho_1	There is no significant relationship
Compassion Fatigue - Resilience	-0.254	Weak negative association	0.038	Reject Ho_2	There is a significant relationship
Moral Injury - Resilience	-0.318	Weak negative association	0.009	Reject Ho_3	There is a significant relationship

Table 3. Linear regression analysis of burnout, compassion fatigue and moral injury as predictive factors towards resilience of nurses in COVID-19 wards.

Variables	*p* Value	*β* Coef.	Std. Error	Multiple R	R^2	Adjusted R^2	Std. Error	Observations
Personal Burnout	0.063	-0.009	0.005	0.229	0.052	0.038	0.550	67
Work-Related Burnout	0.070	-0.007	0.003	0.222	0.050	0.035	0.551	67
Client-Related Burnout	0.331	0.004	0.004	0.121	0.015	-0.001	0.561	67
Compassion Fatigue	0.080	-0.005	0.003	0.215	0.046	0.032	0.552	67
Moral Injury	0.227	-0.006	0.558	0.150	0.022	0.007	0.558	67

there was around the estimates of the regression coefficient. For its regression statistics, the multiple R was at 0.222. For the Adjusted R^2, the value shown was 0.035; this lower adjusted R^2 indicates additional variables were not providing any value to the regression model. Lastly, it had a standard error of 0.551.

For the linear regression analysis of client-related burnout and resilience, the results revealed a high p-value (p = 0.331), thus, there is no significant correlation between client-related burnout and resilience found. In addition, client-related burnout was not a predictive factor of resilience. Specifically, results showed 0.004% increase (regression coeffiecient = 0.004) in resilience for every one percent increase in client-related burnout. For its regression statistics, the multiple R was determined to be 0.121. For the Adjusted R^2, the value was -0.001; this lower adjusted R^2 indicates additional variables were not providing any value to the regression model. Lastly, it had a standard error of 0.561.

For the linear regression analysis of compassion fatigue and resilience, there was no significant correlation between compassion fatigue and resilience (p = 0.080) therefore compassion fatigue is not a predictive factor of resilience. Specifically, results showed 0.5% decrease (regression coefficient = -0.005) in resilience for every one percent increase in compassion fatigue. Standard error of 0.003 showed how much variation there was around the estimates of the regression coefficient. At present, no literature supports or contradicts the results of the linear

regression analysis of moral injury as a predictive factor toward resilience among nurses in a public hospital. For its regression statistics, the multiple R was at 0.215. Meanwhile, R^2 value was 0.046, which indicates that personal burnout explained 4.6% of the variability in resilience. For the Adjusted R^2, the value shown was 0.032; this lower adjusted R^2 meant additional variables were not providing any value to the regression model. Lastly, it had a standard error of 0.552.

For the linear regression of moral injury and resilience, there was no significant correlation between moral injury and resilience ($p = 0.227$) therefore, moral injury was not a predictive factor of resilience. Specifically, results showed 0.006% decrease (regression coefficient = -0.006) in resilience for every one percent increase in moral injury. Standard error of 0.558 showed how much variation there was around the estimates of the regression coefficient. The multiple R was at 0.150. Meanwhile, R^2 value was 0.022, which indicates moral injury explained 2.2% of the variability in resilience. The value shown for Adjusted R^2 was 0.007, which indicates that additional variables were not adding any value to the regression model. Lastly, it had a standard error of 0.558.

Discussion

Level of compassion fatigue showed that 88.1% of nurses have scored 30 and above on the CF Short Scale, indicating that majority of them experienced job burnout. One study found that in crisis events, compassion fatigue and its accompanying symptoms are significant and likely problems for critical care nurses because the pressures to address and cope with the demand for healthcare sometimes outweigh the capability to fulfill it.[16] Data on compassion fatigue is significant because it can help alert healthcare institutions of the number of nurses in their COVID wards that are feeling less compassionate towards their clients.

Level of moral injury showed that 77.6% of nurses fall under the category of "requiring clinical attention" using the MISS-HP. This is aligned with a study which revealed that HCW in contact with COVID patients showed elevated sight of negative mental health symptoms.[17] Obtaining the status of moral injury will allow the hospital administrations with COVID wards to understand how many of their nurses' values and moral beliefs have been likely distressed.

Level of resilience showed that 69% of nurses experienced medium resilience. This is supported by a previous study that showed resilience as a significant mediator in preventing the negative impact of burnout, compassion fatigue and moral injury in the nurses' ability to deliver high-quality patient care.[11] Knowing their resilience status will aid the administration of various hospitals to understand that the COVID-19 pandemic has influenced the resilience of nurses down to medium levels, and that such data call for policy reform in each respective institution.

For the correlation between compassion fatigue and resilience, the Pearson's r ($r = - 0.254$) implies that there is a weak negative association between these two variables. This data is also supported by a study which revealed that levels of psychological resilience influenced the effects of compassion fatigue on nurse's work outcome and patient safety outcomes and therefore, further proving a relation between compassion fatigue and resilience.[18]

For the correlation between moral injury and resilience, it was found to have a weak negative association ($r=-0.318$). This finding is backed up by a study which found that increased stress among nurses resulted in poor decision-making and dissatisfaction with the care provided to their patients, resulting in a higher likelihood and frequency of moral injury, particularly for nurses working in COVID-19 wards with a high workload demand.[19]

There was no literature to support or oppose the findings of the linear regression analysis of moral injury as a predictor of resilience among nurses in a public hospital at the time of this writing.

Conclusion

This study explored the relationship between burnout, compassion fatigue, moral injury, and resilience among nurses working in COVID-19 wards. The results revealed variations in the correlations between these variables. Personal and work-related burnout showed a significant positive correlation with resilience, while there was no significant correlation between client-related burnout and resilience. The three subscales of burnout displayed a negligible negative correlation.

Regarding compassion fatigue and moral injury, both showed weak negative correlations with resilience, suggesting an inverse relationship. As

resilience increased, compassion fatigue and moral injury decreased, and vice versa, albeit to a weak extent. Multiple linear regression analysis indicated that burnout, compassion fatigue, and moral injury were not predictive factors for resilience among nurses in COVID-19 wards of a public hospital. Additionally, no confounding variables were found to affect this prediction.

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