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Research Article

Attachment Style, Affective Temperament, and Psychological Distress among Mental Health Nurses during the COVID-19 Pandemic

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The nursing staff is more likely to experience drastic stress, which can compromise their physical and mental health and affect the quality of their work. This study aimed to assess the attachment type and affective temperament in connection to the psychological effects of the COVID-19 pandemic on psychiatric hospital nurses. We conducted a cross-sectional online survey utilizing a convenience sample population of 100 nurses who served on the front lines during the COVID-19 outbreak. The key findings showed that most nurses reported moderate attachment anxiety, moderate affective temperament, and mild psychological distress. It is crucial to offer nurses psychological support during COVID-19 through various channels.

1. Introduction

The COVID-19 crisis, which has endured for more than two years, has challenged healthcare systems with an unprecedented obstacle [1]. Healthcare teams in all sectors and disciplines face enormous difficulties in terms of patient care, their own physical safety, and the emotional distress they and their households have suffered [2]. Medical personnel, particularly nurses, have faced an unprecedented plethora of work-related stressors, including inadequate personal protective equipment, fear of exposure to the virus, distress at potentially spreading the virus at work, concern about whether their organization would support them if they became infected, and the frequent lack of a robust epidemic management plan [3–6].

The COVID-19 pandemic has had a profound influence on the mental health of care providers in the most severely affected nations [7, 8]. Numerous studies conducted around

the world on the extent of psychological suffering among healthcare staff have yielded a plethora of data. According to earlier studies, the prevalence of depression among nurses ranged between 23.2% and 37.3%, and between 22.8% and 41.2% of actively practicing nurses exhibited symptoms of anxiety [5, 3, 9]. In their meta-analysis of thirteen articles, Pappa et al. [10] discovered that more than two-thirds of medical professionals suffered from insomnia, and more than one-fifth had anxiety or psychological distress symptoms. In their review, Vindegaard and Benros [11] found that, on average, healthcare workers had more anxiety, depression, and sleep issues than the general population [6, 12]. Remarkably, Li et al. [13]; who performed a meta-analysis, found that the highest pooled prevalence of depression and anxiety was reported by studies conducted in the Middle East (34.6% for depression and 28.9% for anxiety). This result supports the need to explore poorer psychological outcomes in Middle Eastern populations [9].

Numerous explanatory models are employed in neuropsychiatry to understand enduring mood, affect, and behavior patterns among healthcare providers [14]. One of these is the affective temperament model. The term "temperament" is used to describe the early emergence of individual differences in an emotional reaction that have a profound biological basis and endure throughout life [7, 15]. Affective temperament constitutes a cluster of conditioned styles such as depressive, cyclothymic, irritable, and anxious temperaments, which are associated with a weaker reaction to occupational stress. By contrast, hyperthymic temperament improves the individual's resistance to occupational stress [16]. Affective temperamental qualities and associated personality features, such as enhanced coping strategies for environmental stresses, may influence the individual's adaptive performance when they encounter such stressors [15, 17]. Moreover, stressors influence the attachment types of individuals; those with secure attachment styles are often more resilient in stressful settings and display adaptive coping. However, there is a dearth of research on the effects of attachment patterns on the modulation of persistent stress or trauma exposure [7, 18, 19]. According to Set [20], having a secure attachment is associated with lower weariness levels than a fearful or anxious attachment. Researchers have reported that nurses who fear avoidance suffer significantly greater employment stress than those who are securely committed [1, 7, 14].

However, there is also a substantial lack of research concerning the factors influencing psychological reactions to the ongoing COVID-19 pandemic. Examining the factors linked to emotional distress among nurses during this unique period will aid in the development of measures to assist nurses caring for COVID patients, hence preventing a long-term emotional impact and burnout [21]. We postulated that emotional temperament and attachment anxiety may influence the degree of psychological discomfort experienced during the pandemic. Despite the number of researchers studying nurses' psychological distress and the associated risk factors among nurses during the spread of COVID-19, none has examined the prevalence and function of attachment style and affective temperament in predicting the degree of mental

distress associated with COVID-19. Thus, we had the following three aims: (1) evaluating the prevalence of attachment style, affective temperament, and psychological distress among nurses working in psychiatric settings during the COVID outbreak; (2) examining the association between the level of attachment anxiety, affective temperament, and psychological distress and the sociodemographic characteristics of the same group of nurses; and (3) exploring the role of affective temperament and attachment anxiety in predicting psychological distress among mental health nurses during the COVID-19 outbreak.

2. Methodology

2.1. Design and Setting. We conducted a cross-sectional online survey utilizing a convenience sample population of 100 nurses who served on the front lines during the COVID-19 outbreak at Egypt's Tanta Mental Health Hospital in 2021. Tanta Mental Health Hospital is affiliated with the Ministry of Health and Population. It contains a total of 100 beds, with two rooms for ladies (25 beds) and two rooms for men (25 beds). In addition, it offers mental health (hospitalization, outpatient care, dispensing of psychotropic medications, psychiatric rehabilitation) to the administrations of Gharbya, El Menofeya, and Kafr Elsheikh. The Mental Hospital operates seven days a week, around the clock. Medical professionals, such as nurses who have graduated from the Faculty of Nursing, the Technical Institute of Health, or the Secondary School of Nursing, work directly with patients at this institution.

2.2. Participants. We selected the subjects based on the following criteria: both sexes, all age groups, nurses who provided direct care to inpatients with psychiatric problems during the COVID pandemic, and those nurses who were willing to participate. Nursing supervisors and those in administration positions who did not provide direct patient care were excluded. Our estimated minimum sufficient sample population size for multiple regression with 11 predictors to achieve a statistical power of 95% and to detect a small effect size of 0.50 with $p = 0.05$ was 100 subjects.

2.3. Measurement Tools. The data were obtained through the following four instruments (the first of these was a demographic sheet, and the other three were standardized self-reported scales): (1) the demographic sheet which had been created by all study researchers; (2) the Attachment Style Questionnaire (ASQ) (3) the Temperament Evaluation of the Memphis, Pisa, Paris, and San Diego Auto questionnaire (TEMPS-A); and (4) the Kessler Psychological Distress Scale (K10). All participants completed the questionnaires online in the English language (nurses in Egypt are proficient in the English language). We provide further details on the instruments as follows.

2.3.1. Demographic Characteristics and Clinical Experience Sheet. Participants were asked to enter their sociodemographic data, including age, sex, marital status, place of

residence, level of education, income, physical disease, years of psychiatric work experience, and contact with COVID-19 patients.

2.3.2. Attachment Style Questionnaire (ASQ). [22] developed and validated this instrument; they intended it to be employed to assess attachment anxiety. This self-evaluation instrument contains the following 40 items and five subscales: (1) "confidence," which characterizes stable attachment; (2) "discomfort with intimacy," which assesses avoidance of intimacy; (3) "relationships as secondary," which assesses attachment avoidance; (4) "need for approval," which assesses the respondent's level of this need; and (5) "preoccupation with relationships," which assesses the respondent's tendency to be obsessive over their relationships. Each of the 40 items has a 5-pointLikert-type scale set of responses that includes 1 ("strongly disagree"), 2 ("disagree"), 3 ("neutral"), 4 ("agree"), or 5 ("strongly agree"); the range of values for the instrument's total score is thus 40 to 200. Three items-—20, 21, and 33—require reverse scoring (this was intended to prevent errors in completing the instrument). The total score is interpreted as follows: <50% indicates a low attachment style, 50 to 75% indicates a moderate attachment style, and >75% indicates a strong attachment style [23, 24].

2.3.3. The Temperament Evaluation of the Memphis, Pisa, Paris, and San Diego Auto Questionnaire (TEMPS-A) (Preti et al. [25]. We employed this questionnaire to evaluate nurse participants' emotional temperaments (cyclothymic, depressive, irritable, hyperthymic, or anxious). The instrument contains 39 items organized into five subscales (depressive, cyclothymic, hyperthymic, irritable, and anxious). Each item has a two-point scale response (yes = 2, no = 0). The total instrument score thus has a range of 0 points to a maximum of 78 points. To obtain the respondent's temperament score, it is necessary to divide the instrument's total score by the number of relevant items in each subscale'. The total temperament score is interpreted as follows: 50% (mild temperament), 50–75% (moderate temperament), and >75% (extreme temperament) (severe temperament) [20, 14].

2.3.4. Kessler Psychological Distress Scale (K10). Kessler et al. [26] developed this instrument to assess psychological distress. The K10 scale consists of ten items that ask about a respondent's emotional states, each with a five-pointLikert-type answer scale response, ranging from 1 (none of the time) to 5 (all the time); the instrument's total score value thus ranges from 10 to 50. The cutoff score is 20, with lower scores implying less psychological distress, whereas high scores indicate considerable psychological distress. This instrument can be employed as a quick screening tool to determine the respondent's level of distress. If the answer to question 2 or to question 5 was "there is no time," questions three and six become unnecessary. Based on the instrument's total score, the respondent's level of

psychological distress is as follows: a score of 10 to 19 indicates probable well-being, 20 to 24 probable mild distress, 25 to 29 probable moderate misery, and 30 to 50 probable severe distress.

2.4. Data Collection and Ethical Consideration. After we had obtained the approval of the Research Ethics Committee (22-9-87) of the Nursing School at Tanta University, we implemented web-based versions of our four questionnaires to obtain data. A few weeks prior to the beginning of our study, we sent the nurse executives of Tanta Mental Health Hospital letters requesting permission to gather data. The primary researcher (H E) acquired a list of the Mental Hospital's nurses' e-mail addresses from the Nurse Director and sent an e-mail to those nurses describing the study and our objectives. We used pilot data and tested all our instruments for reliability using Cornbrash's Alpha coefficient test and found them to be ($r = 0.801$, 0.731, and 0.87, respectively). Nurses interested in participating in the trial contacted the primary researcher expressing their ineptest through e-mail. Ten registered nurses participated in our pilot study, which used our online instruments to evaluate the clarity, viability, and usefulness of our proposed instruments. We excluded the data of these 10 nurses from our primary analyses. After the primary researcher (HE) identified potential participants based on the inclusion criteria, a brief orientation was provided via Zoom meeting, our purpose in conducting the study was explained, and the potential participants were reassured that the information they provided would be kept confidential as possible and used solely in our study, as well as their right to withdraw at any time. We obtained participants' consent using an online form. The participants were instructed on how to access and complete the online surveys and were invited to fill out the questionnaires at their convenience, with detailed instructions provided regarding how to submit their responses. We obtained data from the participants over a three-month period (i.e., from June 2021 to August 2021).

2.5. Statistical Analysis. We used SPSS V19 (Statistical Package for Social Studies) developed by IBM, Illinois, Chicago, USA, to process, organize, code, and statistically analyze the data we acquired data. Data were quantified using frequencies and percentages. We employed the Chi-square test to assess the differences between the participants' sociodemographic variables (sex, age, marital status, residence location, education, years of experience, physical disease, and contact with COVID patients); and their critical factors (attachment anxiety, affective temperament, and psychological distress) We used a Pearson's correlation coefficient and analysis of variance to assess the potential associations between demographic characteristics and major research variables (attachment anxiety, affective temperament, and psychological distress). We then constructed a series of univariate linear regression models in which the sociodemographic and other potential predictor variables were added as singleton independent variables and psychological distress was the dependent variable, to assess the

potential relationships of the independent variables with psychological distress. We then added the predictor variables from this initial stage to a separate multivariate linear regression model to determine which variables (given the other variables in the model) specifically contributed to the prediction of psychological distress. We set alpha (the criterion value below which a p value would be considered statistically significant) to 0.05.

3. Results

3.1. Study Characteristics.
Most of the participants were female (58%), and their mean age was 26.97 ± 5.16 years (Table 1). More than half of them (52%) were married. According to 58% of the participants, they did not have enough income. Nearly three-quarters (73%) of the participants had between 1 and 5 years of experience in psychiatric nursing. Approximately 49% of the participants had had some form of contact with COVID-19 patients.

3.2. Prevalence of Attachment Anxiety, Affective Temperament, and Psychological Distress.
We found that slightly more than three-quarters (77%) of the participants had a mild form of attachment anxiety (Figure 1). Nearly two-thirds (65%) of the participants had a moderate version of Affective temperaments (Figure 2). We observed that 15% of participants had well-being; only one-third (33%) had mild psychological suffering (Figure 3).

3.3. Association between the Study Variables and Sociodemographic Characteristics of the Studied Nurses.
We found a statistically significant association between attachment anxiety and the participants' years of experience ($X^2 = 24.946$, $p = 0.003$) (Table 2). We observed a statistically significant relationship between participants' sex and whether they had an affective temperament ($X^2 = 7.162$, $p = 0.007$). There was also a statistically significant association between participants' income and whether they demonstrated an affective temperament ($X^2 = 7.162$, $p = 0.007$). We also found a statistically significant relationship between participants' years of experience and whether they had an affective temperament; those with more years of experience had a higher affective temperament ($X^2 = 25.637$, $p = 0.002$). The association we observed between the participants' years of experience and their level of psychological suffering was statistically significant ($X^2 = 59.667$, $p = 0.000$).

3.4. Regression Model in Predicting Psychological Distress.
Perhaps unsurprisingly, the univariate model for the effect of affective temperament on psychological distress indicated a statistically significant relationship between these variables ($B = 0.40$, 95% confidence interval (95% CI; 0.11, 0.069, $p = 0.007$) (Table 3). In the multivariate linear model, after controlling for attachment style and participants' demographic features (sex, age, marital status, residence location, education, years of experience, physical disease, and contact with COVID patients), we observed a statistically

Table 1: Allocation of the studied nurses according to their sociodemographic characteristics and work experience.

Studied nurses ($n = 100$)			
Sociodemographic criteria		N	%
Sex	Male	42	42
	Female	58	58
Age	20–30	83	83
	31–40	11	11
	41–	6	6
	Mean SD: 26.9700 ± 5.16095		
Marital status	Single	27	27
	Married	52	52
	Divorced	21	21
Place of residence	Urban	51	51
	Rural	49	49
Education level	Diploma of Nursing	66	66
	Institute of Nursing	6	6
	Bachelor of Nursing	28	28
Income	Enough	42	42
	Not enough	58	58
Years of experience	1–5	73	73
	6–10	27	27
Physical disease	Yes	36	36
	No	64	64
Contact with COVID-19 patients	Yes	49	49
	No	51	51

significant positive relationship between the level of affective temperament' and participants' psychological distress level ($B = 0.52$, (95% CI: 0.019, 0.084), $p = 0.002$).

4. Discussion

The COVID-19 outbreak is currently the most comprehensive health disaster and the greatest challenge faced by humanity since World War II [2]. This pandemic is a large-scale traumatic event affecting every country [3, 4]. The present study evaluated the affective temperament, attachment style, and psychological distress resulting from the COVID-19 outburst of nurses in a psychiatric hospital. Our findings indicate that three-quarters of the nurses had a mild level of attachment anxiety. This supports the findings of Kidd et al. [27]; who probed the association of adult attachment style and cortisol responses to serious stress stemming from the attachment style of those in their sample population affected by stressful events. According to attachment theory, worrying events have a detrimental effect on an individual attachment pattern; from this perspective, the COVID pandemic can be considered not merely a stressful event but a catastrophic one potentially inducing a mild level of attachment anxiety in most nurses during this pandemic [14].

Affective temperaments are differences in personality traits as well as reaction styles that may be lifelong in duration and remain consistent over a wide range of employment places [8]. Temperaments play a critical role in an individual's emotional reactions to stressful life experiences [4]. We observed that most of the nurses who participated in
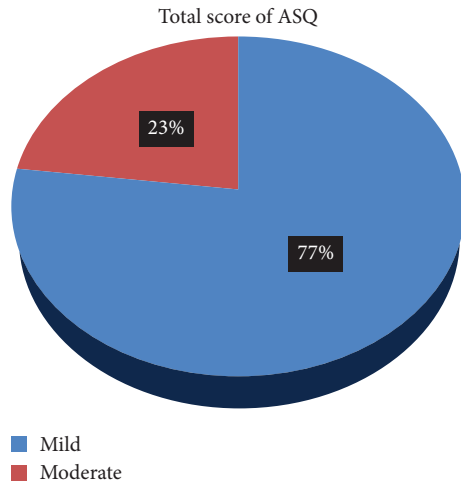
Total score of ASQ

FIGURE 1: Percentage division of total score of the studied nurses regarding their level of attachment anxiety.

FIGURE 2: Percentage division of total level score of affective temperaments of a considered nurse.

Total score of Kessler 10 Psychological Distress Scale

FIGURE 3: Percentage distribution of the total level of the psychological impact of the COVID-19 outbreak on the studied nurses.

our study had a moderate level of affective temperament. However, this might be expected, as nurses have been frequently perceived to be the first line of defense against the COVID-19 virus; nurses often made this perception real, as many fought the epidemic with all their might and sacrificed their lives for others, despite any fears that might have prompted them to not do anything to help others [8]. These factors all have emotionally impacted nurses. Our results corroborate those of Liu et al. [28]; who reported that the early phase of the COVID-19 pandemic had a seemingly magical effect on emotional responses.

We discovered that one-third of our participants had minor psychological distress, which could be the residual emotional effect of the lack of personal protective equipment, apparently inconsistent guidelines, and a lack of vaccines or treatments. Many professional caregivers felt confused and unprepared to treat patients infected by the virus. Consequently, they suffered from feelings of uncertainty, helplessness, alienation, and isolation and had difficulty managing their workload [7, 15]. This finding is perhaps like those of Giusti et al. [29] and Elghazally and Shimaa [30] who reported that health professionals showed high levels of burnout and psychological symptoms during the early and middle phases of the COVID-19 pandemic.

We found statistically significant associations between participants' attachment anxiety, affective temperament, years of experience, and psychological distress. These associations may be products of the greater experience the nurses had, as experience provides them with qualities and mental resources enabling them to control their reactions better thereby becoming less nervous, and appearing calmer and emotionally stable [7, 15]. These results are like findings reported by Kidd et al. [27] and may agree at least in part with Bongelli et al. [17]; who reported that a nurse's personality traits play a critical role in keeping the nurse calm during the pandemic.

Consistent with the finding by Guo et al. [31] that the female gender may confer greater susceptibility to psychosocial stress (males being less likely to acquire psych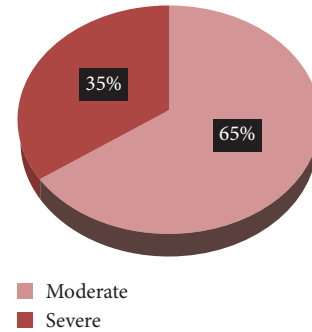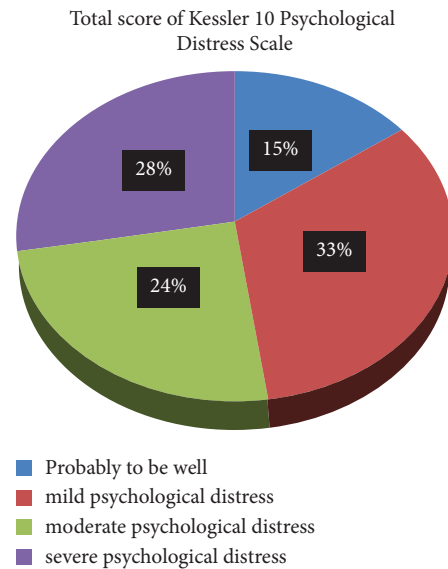ological symptoms in response to a stressful incident), we observed a significant connection between the sex and affective temperament of mental health nurses. Huang et al.; [32, 33] who surveyed people in China one month after the COVID-19 epidemic began, also reported that women had more post-traumatic stress symptoms than men.

The association we observed between affective temperament and psychological distress, as well as the fact that the former was the sole predictor of the latter, has not been sufficiently studied. [16] discovered an association between the features of affective temperament and the severity of nurses' stress as well as their tendency to suffer from professional burnout. Similarly, [33, 35] found that some affective temperament modes (cyclothymic, and nervous) are associated with less effective coping. Studies reported that the level of anxious temperament predicted a negative evaluation of stressful life experiences, which in turn harmed mood and well-being; [33–35, 16]. Thus, it may well be that greater intensity of emotional temperament induces the employee's poorer evaluation of work during a COVID pandemic, thereby increasing the risk of psychological distress.

TABLE 2: Relation between level of attachment anxiety, affective temperament, and psychological distress and sociodemographic characteristics of the studied nurses.

Sociodemographic criteria		Studied nurses ($N = 100$)		
		Attachment anxiety	Affective temperament	Psychological distress
Sex	X^2	0.416	7.162	5.670
	p value	0.519	0.007***	0.129
Age	X^2	13.216	9.301	46.807
	p value	0.431	0.750	0.183
Marital status	X^2	2.348	1.827	4.575
	p value	0.309	0.401	0.599
Residence	X^2	2.416	0.233	2.091
	p value	0.120	0.630	0.554
Education level	X^2	1.846	1.955	1.547
	p value	0.397	0.376	0.956
Income	X^2	0.416	7.162	5.670
	p value	0.519	0.007***	0.129
Years of experience	X^2	24.946	25.637	59.667
	p value	0.003***	0.002***	0.000***
Physical disease	X^2	1.274	0.069	2.313
	p value	0.259	0.793	0.510
Contact with 19 patients	X^2	2.416	0.233	2.091
	p value	0.120	0.630	0.554

X^2 (chi-square), *** $p < 0.01$.

TABLE 3: Regression model between psychological distress and affective temperament, attachment style, and sociodemographic characteristic.

Predictor	Univariate models				Multivariate model			
		95% CI				95% CI		
	B	Lower	Upper	p. value	B	Lower	Upper	p. value
Attachment style	0.059	−0.437-	0.556	0.813	−0.240	−0.788-	0.308	0.386
Affective temperament	0.40	0.011	0.069	0.007***	0.52	0.019	0.084	0.002***
Age	−0.008-	−0.049-	0.032	0.684	−0.003	−0.048-	0.041	0.888
Sex	−0.070-	−0.493-	0.354	0.744	0.14	068	−82	0.063
Years of experience	−0.028-	−0.119-	0.064	0.550	−0.038-	−0.131-	0.055	0.418
Residence	0.154	−0.263-	0.571	0.465	0.11	0.03	0.18	0.06
Marital status	−0.108-	−0.370-	0.154	0.414	−0.094-	−0.389-	0.200	0.526
Education	−0.028-	−0.376-	0.321	0.875	−0.052-	−0.407-	0.304	0.773
Health	−0.234	−0.667-	0.199	0.285	−0.282-	−0.732-	0.168	0.217
Contact with COVID patient	0.154	−0.263-	0.571	0.465	0.248	−0.193-	0.688	0.267
Income	−0.070	−0.493-	0.354	0.744	0.173	−0.282-	0.627	0.453

CI (confidence interval), B (beta-coefficient), *** $p < 0.01$.

Our results should be interpreted with caution due to the limitations of our study. First, the size of our sample was relatively small (given the number of predictors we tested), which may have led to an underestimating of any substantial correlation between temperament and psychological distress. Second, our survey questionnaires were administered online and relied on volunteer sampling along with self-reported information. Thirdly, as we employed a cross-sectional study design, causal inferences cannot be drawn. Despite these limitations, to the best of our knowledge, ours is the first study to investigate the role of affective temperament in predicting psychological distress among nurses in the Middle East during the COVID-19 pandemic. Given the recent revival of COVID-19 in Egypt, we urgently recommend that a new survey be conducted to determine potential changes in the current emotional well-being of nurses and to produce data useful for the formulation of appropriate psychological and psychosocial therapies.

5. Implication and Future Recommendations

As dysfunctional levels of COVID-19 psychological distress may have negative effects on nurses' mental health, hospital administrators should conduct awareness—raising exercises as well as educational efforts related to COVID-19 in psychiatric hospitals. Similarly, we suggest that hospital administrators should implement (based on evidence-based measures) to promote nurses' mental health during the

COVID-19 pandemic [11]. Further longitudinal work is required both as a follow-up to our survey as well as to understand the underlying mechanism through which risk factors for psychological distress operate among nurses. Psychological support services for nurses can focus and encourage self-care by enabling them to take advantage of flexible or shorter duty hours, proper breaks, or a schedule, which may assist lessen the distressful impact of the crises. Finally, we recommend that efforts be made to identify nurses dealing with this pandemic along with epidemics of other contagious disease entities and that a teaching program be established for nurses addressing appropriate stressor-coping methods.

6. Conclusion

The COVID pandemic has had a substantial impact on the nurses working in a mental health setting. Most of our nurse participants carried a mild level of attachment anxiety, moderate levels of affective temperament, and suffered from minor psychological distress. Affective temperament has a substantial role in predicting nurses' psychological distress levels. Longitudinal research is required for adequate exploration of the underlying mechanisms of affective temperament that best predict psychological distress among nurses and to provide the data needed for the establishment of additional instruction for nurses which will address appropriate stressor coping methods with stresses.

Data Availability

Due to the nature of this research, participants of this study did not agree for their data to be shared publicly, and the supporting data will be available upon request.

Ethical Approval

This study is conducted in accordance with the declaration of Helsinki. The collection and evaluation of all protected participants' health information were performed in Health Insurance Probability and Accountability Act (HIPAA) compliant manner.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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