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Research Paper

Exploring Emotional Contagion, Perceived Stress, and Coping among Nurses

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ABSTRACT

This study aims to explore which factors among emotional contagion, perceived stress and coping strategies can best characterize nurses on the basis of their expertise. This was an observational study using the methods of t-test followed by discriminant analysis. A sample of 120 nurses from a multi-speciality hospital in India were assessed. Among the variables of emotional contagion, perceived stress and coping strategies, the "love" contagion, and emotion -focused coping strategies of "denial," "blame" and "negative distraction" were found to best categorize the two groups of nurses. This study explores the nature of contagion and stress in nurses, but further studies are needed for a deeper understanding of specific physiological, and psychological aspects of stress and emotional contagion.

Keywords: *Emotional Contagion, Perceived Stress, Expertise, Nursing Health*

Nurses are constantly involved in the complex system of universal healthcare, bridging gaps within and outside the medical establishment (Diwanakumar, 2014). Nursing and psychological literature has previously attempted to understand different aspects of nursing in frontline healthcare settings such as burnout and occupational stress among nurses, thereby bringing out avenues for more studies into certain emotional and physiological variables (Petitta, Jiang, & Härtel, 2017).

Emotional contagion is the tendency by which people mimic observations from their senses, thereby "taking in" emotions of other individuals. It is a non-conscious, physiological mechanism of detection and reflection of perceived emotional cues. Studies have reported that the vocational undertakings of nurses possess more enduring and close relationships with patients in comparison to that of doctors therefore have a tendency to grasp different spectrums of emotions (Petitta et al., 2017). Contagion is a primary prerequisite of empathy (Hatfield, Bensman, Thornton, & Rapson, 2014), a quality of any nursing professional.

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Evidence suggests that contagion significantly impacts employee performance (Brandford & Reed, 2016).

Along with emotional contagion, studies have shown the existence of another phenomenon known as 'perceived stress' in the psychological dynamics of mental health of nurses (Diwanakumar KJ, Shivram Bhat Pookala, 2014; Shakthivel et al., 2017). Coping with stressors moderates the sympathetic effects of perceived stress (Morales & Pérez-Mármol, 2019) and has placed emphasis on the mechanism of "avoidance", as a predictor of negative moods (Healy & McKay, 2000). Yet cross cultural differences are reported to exist (McCarthy, Power, & Greiner, 2010).

Factors such as contagion, stress and coping counterstrategies have been shown to impact overall mental health and work quality of nurses (Barsade, 2002; Conradie et al., 2017; Glazer, 2005). It would be noteworthy to understand the relevance of tactfulness and clinical decision making among nurses (Chow, Wong, Chan, & Chung, 2014), which could only be ingrained as a result of clinical expertise, through repeated exposure and practical experience (Stinson, 2017). This amalgamation of theoretical and practical knowledge leads to an understanding that psychological mechanisms of contagion, stress and strategies to cope are established throughout the vocational situations encountered by nurses, but there poses a paucity in understanding the fundamental factors of such psychological mechanisms with respect to nursing clinical expertise.

Experience is an ultimate contributor to clinical decision making (Stinson, 2017). Majority of research related to stress and coping among nurses have been studied through descriptive (Treesa Jose, Ashraf Bhat, Jose, & Bhat, 2013), correlational (Shah, Hasan, Malik, & Sreeramareddy, 2010; Treesa Jose et al., 2013) and cause-effect (Fernandes & Nirmala, 2017; Glazer, 2005; Healy & McKay, 2000) methods but have contrasting findings. In an effort to predict the trajectory, Takase (2013) developed a 'growth curve model' for nursing expertise. According to this growth curve model, there is evidence of two phases of nursing expertise, namely the rapid growth period, succeeded by a stable period of clinical growth based on the number of years of experience a nurse has. The influence of psychological mechanisms on the occupational choices and actions of nurses and its influence on the growth trajectory of nursing expertise have so far not been explored and their overlap can help understand the interconnection between the two – i.e., the psychological mechanisms and the growth trajectory of expertise. It was reasoned that there was need to understand how coping, stress and emotional contagion can best define nursing professionals on the basis of their experience.

Therefore, the present study aims at exploring which variables of (1) emotional contagion, (2) perceived stress and (3) coping strategies can best differentiate nurses who are experienced and nurses who are novice.

METHOD

We conducted the study with a sample of 120 nursing professionals from a multispeciality hospital in South India. The participants were Indian, with more than half of the sample from the urban region. The study employed a convenient sampling procedure with the inclusion criteria of having a fluency of reading and writing English. We contacted the nursing professionals after obtaining appropriate permission from the relevant authorities upon ethical approval (KMCMLR 02-2020/140). The questionnaires were sent electronically as Google Form Questionnaires. Out of the 136 forms collected, 130 fell into the inclusion

criteria, out of which the nurses were divided on the basis of number of years of experience into 2 groups. The first group was nurses who had less than 10 years of experience (group name 'novice') and the second group was nurses who had more than 10 years of experience (group name 'experienced') (Takase, 2013). From the data collected, 60 nurses fell into the experienced category and 70 fell into the novice category. Out of the 70 "novice" nurses, 60 were selected through the random sampling method so that both groups had equal number of nurses. Nurses who have had prior experience working as auxiliary nurses and who do not prescribe medications to patients on a regular basis were excluded from the study. Participants were provided with an informed consent form and participant information sheet. Identity of the participants were kept anonymous, and confidentiality was maintained throughout the study. During online data collection, the phone numbers of participants were obtained post ethical approval, by the Human resource Department of the multispeciality hospital. The nurses were spoken to on phone or face to face and introduced to the study after consent was taken. Then, the Google Form was sent online, via WhatsApp and direct messaging. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional ethics committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Written consent was obtained from all the participants of the study.

The following tools were used in this study. We primarily used a socio-demographic information form. This section was to collect information on identity and demographic variables such as, age, number of years of experience, qualification, and exposure to COVID-19 patients. We also used questionnaires such as the "Emotional Contagion Scale": which measures the susceptability of an individual to emotional stimuli. Consisting of 15 items, it has five sub-factors such as love, anger, happiness, fear, and sadness. The scale has a high internal consistency (Cronbach's α= 0.90), and a high test-retest reliability (α= 0.82) (Doherty, 1997). The second scale used was the "Perceived Stress Scale (PSS)" consisting of 10 items for brief administration. It is a Likert scale, measuring the degree to which an individual perceives their life as stressful. Each item is on a 5-point Likert scale, ranging from 0-4. Out of which the total score is taken as the level of perceived stress. The PSS subscales had a significant test-retest reliability for (r =.66 and r=.50), (Cronbach's αcoefficient of internal consistency 0.85). We used the "Coping Checklist" (Kiran Rao,1989), which is a comprehensive list of coping strategies consisting of 70 items. This is scored along 7 different subdomains within problem focused, emotion focused, and problem-emotion focused coping domains. The test-retest reliability was 0.74 and internal consistency (α), ranged from 0.75-0.85 indicating adequate reliability. The domains within the coping checklist come under three categories of problem focused, emotion focused and problem-emotion focused coping.

We analyzed the data using the SPSS version 20.0 for Windows. Independent sample t-tests comparing the mean scores of each of the variables of emotional contagion, perceived stress and coping strategies were performed to determine the variables that are statistically significant between the two nursing groups. After conducting the t-tests, a discriminant analysis was done to identify the extent to which these statistically significant variables can best classify nurses into the novice and experienced groups.

RESULTS

Table 1 Demographic details of sample size, mean, marital status and mean years of experience.

Group	Sample size	Mean age(years)	Marital status (% married)	Mean years of experience (years)
Novice	60	30.53	52	5.09
Experienced	60	43.07	96	21.87

The mean values of data for demographic variables for the group's novice (n=60) and experienced (n=60), (based on number of years of service), are presented in Table 1. For the 60 novice nurses, the manage, marital status, and years of experience are 30.53 years, 52 and 5.09 years respectively and for the 60 nurses classified as "experienced", the mean age, marital status, and years of experience are reported to be 43.07 years, 96 and 21.87 years, respectively. Overall, it was observed that about 60.3% of nurses in the sample have had direct exposure to COVID-19 patients.

Table 2 Standardized Discriminant Function Coefficients

Function	
Love	0.772
Distraction-Negative	1.293
Denial/Blame	-0.69

Table 2 gives the standardized discriminant function coefficients for the three factors (sub domains) of 'love', 'distraction-negative' and 'denial-blame'. The standardized canonical discriminant function for love is 0.77, distraction-negative is 1.29 and that for denial-blame is -0.69. This is the most essential aspect which gives us the maximum or majority of the information regarding classification of the nurses based on psychological qualities of nurses. From the coefficients, it can be interpreted that with every 1 standard deviation increase in group membership, there is an increase of 0.77 standard deviations for love, controlling for the other two variables of negative-distraction and denial/blame. Similarly, with the 1 standard deviation increase in group membership, distraction-negative increases by 1.29 standard deviation and denial blame reduces by 0.69 standard deviation controlling for the other two variables.

Table 3 Representation of Group Centroids

Function	
Group	
Novice Nurses	. 483
Experienced Nurses	-. 483

The group centroids assist in understanding the most representative point or the mean value of the liner discriminant functions within a particular cluster. According to the table, a higher value of 0.483 of the function score is a characteristic of the novice nurses and -.483 is a characteristic of experienced nurses. It can be noted that higher function scores can be associated with novice nurses, the opposite pattern of scores result in lower functions of scores and hence a characteristic of experienced nurses.

Table 4 Classification of Function Coefficients

Group		
	Novice	Experienced
	Nurses	Nurses
Love	1.682	1.382
Distraction-Negative	. 329	-. 227
Denial/Blame	. 660	. 901
(Constant)	-9.693	-7.474

Using the input data to derive the coefficients of a scoring function for each category, this table has scaled each variable selected for the analysis according to the degree of category specific coefficient. The table 4 can be used to interpret Fisher's theory for linear discriminant analysis (LDA) in this study, showing the possible linear combinations of predictor variables that are used to form the LDA decision rule.

Table 5 Classification of Nurses- Discriminant Analysis

Group Novice Nurses				**Experienced Nurses**	**Total**
Original	Count	Novice Nurses	42	18	60
		Experienced Nurses	17	43	60
	%	Novice Nurses	70	30	100
		Experienced Nurses	28.3	71.7	100

Concluding the results, the last table (Table 5) shows the results of classification of nurses based on the selected variables of emotional contagion and coping strategies. The discriminant analysis classifies 42 out of 60 originally classified as novice nurses as 'novice' (70%) and rest 18 as 'experienced' (30%). Further, it classifies 43 out of 60 originally classified experienced nurses as 'experienced' (71.7%) and 17 as 'novice' (28.3%). Therefore, 70.8 % of the nurses classified originally, based on their years of experience, aligned with the statistical classification based on psychological variables included in the analyses.

DISCUSSION

The objective of the study was to explore which of the factors of emotional contagion, perceived stress and coping strategies can best classify nurses who are novice and experienced.

We primarily found regardless of a nurse being novice or experienced, there indicates a positive level of the contagion sub-type of love that has been shown to prevail more in nurses who are relatively novice in the field. A possible reason could be because of the extent to which the "love" subscale has been validated in a previously done factor analysis of the emotional contagion scale (Jeedigunta, 2008). The emotional contagion of love is significantly positive according to this particular study, but contradicts a study done previously (Barsade, 2002), which state that emotional contagion, particularly the factor of love, may fail to deliver positive effects, however, this could be owing to the individual and group setting differences. The present study is consistent with the fact that positive contagion enhances cooperation, interpersonal performance in delegation of tasks and decreased conflict. Adding to past literature, this study finds that such a condition is much more present in nurses who are new and have just undertaken responsibilities in the nursing

workforce. Results are also consistent with a cross-sectional study conducted in Iran stating that coping with stress has been challenging for nurses (Vahedian-Azimi et al., 2019).

Results also indicate the prominence of negative distraction, which proves to be significant in both groups of experienced and novice nurses, but more in novice category as compared to the experienced category. Stress and difficulties of coping to a new frontline profession could be a major influential factor of fluctuating health and occupational performance of nurses, regardless of the time they enter the mainstream workforce. Methods of negative distraction are more emotion-focused such as the intake of mood elevating drugs, gaming, and excessive sleeping. These findings are in congruence with studies that indicate certain other emotion focused coping strategies resulting in mood oscillations, distraction and the withdrawal of previously existing coping mechanisms (Martínez-Zaragoza et al., 2020).

We found that the coping mechanisms of denial and blame are strategies which have been found to be significantly present in both experienced and novice nurses but tend to define experienced nurses the best. These findings are consistent with a study (Mroz, 2015), stating the occurrence of an "internalization" phenomenon where denial and blame is prominent and therefore higher levels of stress can increase the degree of internalization of the situation through blaming of oneself. Although denial and blame are strategies that could be considered unhealthy or maladaptive defences, it can be corroborated by the fact that experienced nurses scored relatively elevated levels of perceived stress, and thus, experience increased levels of such maladaptive coping mechanisms. The emotion of love, which seems to be higher in nurses who are classified as novice is much more, than experienced nurses, which leads to the possible effect that experience has on the psychology of nursing professionals. Denial and blame could be coping mechanisms in itself, but they could also be considered a natural and primitive defence against the extreme levels of stress that experienced nurses have faced in the past or are dealing with currently. Studies also indicate that tactics such as self-blame could be a manifestation of helplessness, leading to the maintenance of an internal locus of control, and could further pose as a causative factor for anxiety and deterioration of psychological health, especially when there are more number of years in the profession (Mroz, 2015; Schoenmakers, van Tilburg, & Fokkema, 2015). Therefore, the repeated conditioning of nurse's could be a significant contributor to crisis, conflict, and anxiety-provoking inter-personal situations, leading to heightened levels of denial and blame.

Implications

Several implications could be drawn from this study. Firstly, it is preliminary and provides a comprehensive explanation as to which variables of contagion and coping can predict a novice or experienced level of proficiency in the nursing profession. These inferences will help training programs identify the presence of certain emotion-focused coping mechanisms among nurses who are novice in the workforce and nurses who have a considerable amount of experience in the field. Future nursing education programs could use this study as a base for further research or as a valuable proof for including self-awareness and management programs in the nursing curriculum, so that nurses could be more self-aware, mindful, with reduced levels of distress prior to the entry in the professional trajectory in healthcare. A second implication of the study is that emotional contagion of love seems to be prominent, which is a major ingredient in the quality of empathy, a highly essential component for a nursing professional. This detection, especially among newly joined nurses, is useful in reducing the rates of burnout and understanding that there is a significant difference seen in nurses on classification basis of years of experience.

At a global level, the World Health Organization has estimated a shortage of nurses as of 2020 (Fernandes & Nirmala, 2017), and the pandemic has drastically posed the need to develop active involvements to improve resilience and reduce burnout among frontline nurses (Jose, Dhandapani, & Cyriac, 2020), both personally and professionally. This study clearly identifies the dominance of negative coping mechanisms and therefore implement facilities for a harmonious and cooperative work culture, during and post-pandemic.

Limitations and Future Directions

The primary limitation was the accessibility in contacting nurses for data due their hectic work schedules amidst the COVID-19 pandemic, due to which there could have been situational factors responsible for the increase in stress, thereby increasing the level of negative coping strategies. The second limitation was the change in modality during data collection. This was a barrier for nurses who had reduced access to online platforms, and therefore had to drop out of the study.

This study could serve as a baseline analysis for a plethora of intervention strategies and management programs within the nursing workspace and even the nursing training programs, especially involving more problem-focused or situation focused coping strategies and stress reduction. Further avenues for research could observe nursing variables other than the length of time of clinical experience and can aim at examining certain factors such as perception of nurses in terms of their qualitative experiences of stress and whether they engage in other methods of coping. Future research can also examine the effect of love contagion along with different types of coping strategies. This study was performed across various nurses of one major hospital of an urban South Indian region and given the existence of cross-cultural differences in the perception of stress and contagion variables, a similar study approach which is more inclusive of nurses serving in diverse regions could be implemented.

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Conflict of Interest

The author(s) declared no conflict of interest.

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