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From student to nurse: exploring transition shock through stress, locus of control, and coping strategies in newly graduated nurses

Rasha Kadri Ibrahim¹, Mirna Safi², Amani Darwish³, Yasir S. Alsalamah^{4,5}, Lisa Babkair⁶, Nasiru Mohammed Abdullahi⁷, Basma Maher⁸, Manar Nasser Alotaibi⁹, Monerh Abdullah Alfalaj¹⁰, Shorok Hamed Alahmedi¹¹, Sally Mohammed Farghaly Abdelaliam¹² and Abdelaziz Hendy^{13*}

Abstract

Background Newly graduated nurses often face a difficult transition from academic training to clinical practice, commonly experiencing “transition shock.” This period is characterized by heightened occupational stress, reduced coping capacity, and uncertainty about role identity.

Aim This study aimed to investigate the effects of occupational stress, coping strategies, and work locus of control on transition shock among newly graduated nurses. It also examined how marital status and clinical unit (critical vs. non-critical care) moderate these relationships.

Methods A cross-sectional and descriptive correlational design was adopted. The study was conducted in governmental and private hospitals in Cairo, Egypt. A total of 395 newly graduated nurses (with less than one year of clinical experience) participated. Data were collected using a demographic questionnaire and four validated instruments: the Transition Shock Scale, the Occupational Stress Scale, the Trait Coping Style Questionnaire, and the Work Locus of Control Scale. Data analysis was performed using SPSS and AMOS software. Statistical techniques included Pearson correlation, multiple linear regression, and a moderated mediation analysis. Occupational stress was tested as a mediator, and marital status and unit of assignment were examined as moderators.

Results Transition shock showed a strong positive correlation with occupational stress ($r=0.66, p<0.01$) and external WLOC ($r=0.40, p<0.01$) and a negative correlation with positive coping ($r=-0.39, p<0.01$). Mediation and moderation models confirmed occupational stress as a mediator and marital status and unit assignment as moderators of stress-to-shock pathways. The model explained 64.6% of the variance in transition shock ($R^2=0.646$).

Conclusion Enhancing positive coping and internal locus of control, while reducing stress, can help mitigate transition shock. Supportive workplace programs are essential for nurse retention and well-being.

*Correspondence:
Abdelaziz Hendy
Abdelaziz.hendy@nursing.asu.edu.eg

Full list of author information is available at the end of the article



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Keywords Transition shock, Coping strategies, Occupational stress, Work locus of control, Newly graduated nurses, Psychological adaptation

Introduction

For recently graduated nurses, the transition from the academic setting to the rigorous reality of clinical practice is a crucial moment marked by the development of their professional identity and competency, which are shaped by a spectrum of possibilities and difficulties present at this time. The change is sometimes characterized as a period of “transition shock,” since the actual requirements of healthcare environments differ from academic preparation [1]. Many elements affect this change, including the support structures in place, the healthcare environment’s complexity, and the nurse’s capacity to grow and learn. Lack of practical experience and knowledge can impede the capacity of newly hired nurses to handle challenging patient care, therefore causing performance anxiety and communication problems [1]. Helping new nurses acquire confidence and clinical reasoning abilities depends mostly on structured orientation programs, including qualified preceptors [2, 3].

Though the transition period is full of difficulties, it also offers chances for personal development. Many times, newly graduated nurses demonstrate a great degree of professional devotion and a wish to advance their competencies [4, 5, 6]. For new nurses to develop their professional identity and fit the working environment, which can result in job satisfaction and professional dedication, the first year is vital [6]. Structured programs and the help of seasoned colleagues can greatly ease this transition, hence improving job satisfaction and retention rates [3, 7]. Nonetheless, the new nurses themselves have great responsibility for professional growth since they have to actively search for learning opportunities and adapt to the changing needs of the healthcare environment [8].

Many new nurses encounter great stress during this transition, which can cause burnout, lower job satisfaction, and high turnover rates [5, 6]. Their management of this challenging time can be greatly influenced by their coping mechanisms and apparent locus of control [9]. The gap between expectations and reality marks the first months with great degrees of tension, anxiety, and disappointment [9, 10]. According to a Saudi study, during their internship year, newly graduated nurses go through stress and transition shock. Recent graduates claimed difficulties independently performing complicated skills and stress mostly related to job performance, family responsibilities, and transportation. The outcomes revealed that healthcare companies have to provide enough tools and support to improve the transition experience, thereby raising work satisfaction and patient care [11]. For recently graduated registered nurses, transition shock

greatly influences their patient recovery results and productivity. In a Chinese study among recently graduated registered nurses, four types of transition shock were found; almost 60.4% of the nurses fell into the high transition shock category [12].

The demands of the healthcare setting, such as rising workloads and time management difficulties, aggravate this stress [13, 14]. In high-stress situations like emergency departments during the epidemic, where the workload can be excessive, this is especially evident. Many newly hired nurses express anxiety about their professional competency, dread of making mistakes, and concern about infecting loved ones. The epidemic aggravates these anxieties by raising the consequences of clinical mistakes [13]. Many times, the shift from academic training to clinical practice leaves new nurses feeling inadequately prepared. This lack of preparedness and inadequate organizational support help to cause stress and can result in high turnover rates [15]. Emphasizing the need for support programs to help reduce these difficulties and enhance the transition experience for new nurses in emergency environments, a qualitative study was conducted in Saudi Arabia [16].

Anxiety and depression rates among recently graduated nurses are linked to high degrees of stress. According to studies, a sizable fraction of newly hired nurses report moderate to severe stress; if this is not taken care of, mental health problems could result [17, 18]. Burnout, a major contributing cause to the high turnover rates seen in this group, might result from the combined stress that young nurses go through. To reduce these effects, resilience-building techniques and good stress management are vital [19, 20].

Coping strategies significantly affect how nurses manage stress. Studies have shown that newly graduated nurses who use adaptive strategies, such as seeking social support or developing time-management skills, report lower levels of stress and better adjustment [21]. In contrast, reliance on avoidant or passive coping is linked to negative outcomes, including job dissatisfaction and emotional exhaustion [22]. Developing personal resilience is essential for newly graduated nurses to cope with the challenges of their new roles. Resilience training and self-care practices, such as yoga and mental health promotion, have been identified as effective strategies [23]. Psychoeducational interventions that equip nurses with stress management skills are effective in safeguarding their mental health and ensuring high-quality patient care [24].

A study in Istanbul found that coping styles significantly influence this experience; specifically, the helpless and submissive coping styles correlated with higher transition shock levels. Conversely, seeking social support, self-confidence, and optimism were associated with lower transition shock [25]. A study revealed that positive coping strategies, including seeking social support, self-confidence, and optimism, are linked to lower levels of transition shock [26]. Conversely, a study in Shanghai, China, reported that the interaction between transition shock and negative coping styles significantly impacts job satisfaction, highlighting the need for targeted interventions [27].

Locus of control is the degree of personal belief in control over the events influencing people's lives [28]. An internal locus of control holds that people believe their activities will affect outcomes; an external locus of control holds that external forces mostly determine outcomes. This psychological construct is very important for nurses' adaptation to the demands of entering professional jobs, therefore influencing their coping mechanisms, job satisfaction, and professional identity [29].

Those nurses with a strong internal locus of control often use more flexible coping mechanisms. Stressful events seem more under control to them; therefore, they are prone to using direct coping strategies, which help to control their stress and lower burnout. They are connected to decreased turnover intentions and more job satisfaction [30]. Among nursing students, a strong internal locus of control corresponds favorably with professional identity. This internality helps the nurses to feel accountable and responsible for their professional growth, therefore strengthening their drive and dedication to the nursing field [31]. They believe they have the power to change their workplace, therefore lessening their sense of stress and helplessness.

On the other hand, nurses with an external locus of control could feel less able to change their situation, therefore affecting their coping mechanisms and maybe resulting in more stress and burnout [32]. Targeted educational programs and other initiatives aiming at changing nurses from an external to an internal locus of control have demonstrated how well work satisfaction and retention rates are raised [33]. The level of professional identity and institutional support also affects locus of control. Stronger professional identity and support networks help institutions to develop a greater internal locus of control among nurses, hence lowering stress and burnout [34].

By greatly enhancing the internal locus of control in recently graduated nurses, educational programs can help them to properly manage stress [30]. Crucially for enabling nurses to feel more in charge of their work environment and personal responses to stress, these programs center on improving resilience, mindfulness, and

cognitive control [35]. Programs for resilience sometimes incorporate cognitive-behavioral techniques and experiential learning to enable nurses to create a strong set of coping mechanisms. Resilience education showed consistent increases in resilience scores, thereby suggesting long-term benefits in stress management and mental health for nurses [36]. Another study found that tailored counsel and support from adaptive education programs help new graduate nurses' mental health and job intentions to be better [37].

Our study is anchored in three interrelated theoretical models. To begin with, Rotter's Locus of Control Theory (1966) provides a basis for understanding how internal and external control beliefs influence an individual's response to stress within the workplace [38]. From within this framework, Lazarus and Folkman's Transactional Model of Stress and Coping (1984) defines stress as the dynamic transaction of an individual with the environment, focusing on the individual's coping mechanisms as mediators [39]. Finally, Meleis' Transition Theory applies to nursing and allows for the consideration of the psychological, professional, and situational components of transition shock as nurses move from academic to clinical positions. Despite these models, very few studies have aimed to investigate how stress, locus of control, and coping work together to predict transition shock, particularly in early-career nurses [40]. The current study seeks to fill this gap using these concepts in a moderated mediation framework to provide a more nuanced understanding of the factors influencing early clinical experiences of new nurses.

While each of these constructs, namely stress, locus of control, and coping mechanisms, has been investigated separately, less research has looked at how the interaction of stress, coping strategies, and locus of control uniquely affects newly graduated nurses during their early professional experiences in terms of how they jointly influence early career outcomes, including adaptation, resilience, and retention. This discrepancy emphasizes the importance of an integrated study considering how psychological and professional variables interact during the crucial shift into practice. Focusing on how stress, locus of control, and coping mechanisms affect their adaptation and early career experiences, this study seeks to investigate the shock adjustment that newly graduating nurses undergo when they go from student to professional responsibilities.

Aim

This study aimed to investigate the factors influencing transition shock among newly graduated nurses, with a particular focus on the roles of occupational stress, work locus of control, and coping strategies (positive and negative). Additionally, the study sought to examine

the moderating effects of contextual variables such as marital status and unit of assignment (critical vs. non-critical care) on the relationship between stress and transition shock. A moderated mediation model was used to explore both direct and indirect pathways, contributing to a deeper understanding of how psychological and environmental factors interact to affect early nursing transition outcomes.

Hypothesis

H1 There is a positive relationship between occupational stress and transition shock among newly graduated nurses.

H2 Positive coping is negatively associated with transition shock among newly graduated nurses.

H3 Negative coping is positively associated with transition shock among newly graduated nurses.

H4 A more external work locus of control is positively associated with higher levels of transition shock.

H5 Occupational stress mediates the relationship between coping strategies (positive and negative) and transition shock.

H6 Occupational stress mediates the relationship between work locus of control and transition shock.

H7 Marital status moderates the relationship between occupational stress and transition shock among newly graduated nurses.

H8 Unit of assignment (critical vs. non-critical care) moderates the relationship between occupational stress and transition shock, with nurses in critical care units experiencing stronger effects.

Study design

This study employed a cross-sectional and descriptive correlational design using a quantitative approach to examine the relationships between transition shock, occupational stress, coping strategies, and work locus of control among newly graduated nurses. The design was chosen to capture a snapshot of participants' psychological and workplace experiences during their early transition into clinical practice. This study was reported in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for cross-sectional studies.

Setting

This study was conducted in 12 hospitals in Cairo, both governmental and private hospitals. These hospitals vary in size, ranging from medium-sized community hospitals to large tertiary care centers. While all facilities employed newly graduated nurses, the presence and structure of orientation programs differed. Data was collected from different clinical units, which include the regions where newly registered nurses are usually placed, like critical care units (ICUs and emergency departments) and non-critical care units (medical-surgical wards and outpatient clinics). These units were chosen to provide a range of experiences with different working conditions and a variety of transition experiences among newly graduated nurses.

While all participating hospitals employed newly graduated nurses, the structure and consistency of orientation and preceptorship programs varied considerably. In some hospitals, newly graduated nurses received brief orientation sessions lasting one to two weeks, often without structured mentorship. Only a few hospitals offered formal preceptorship programs with designated preceptors, clear learning objectives, and scheduled mentorship periods. In most settings, preceptors were experienced nurses assigned informally, often without prior training in teaching or mentoring. Furthermore, no formal reward or recognition system was in place for preceptors, and mentorship was usually regarded as part of their routine responsibilities. Newly graduated nurses typically worked 36 h per week.

Subjects

The participants for this study included recently graduated nurses who started working clinically less than a year ago. Participants came from different hospital facilities, both from critical care and non-critical care units. Inclusion criteria were as follows: (1) licensed practical nurses who had completed both their formal academic nursing education and mandatory internship training within the previous 12 months; (2) actively working in a clinical nursing role; and (3) over the age of 18 and capable of giving informed consent. Participants were excluded if they had more than 12 months of work experience, were on prolonged leave during data collection, or had a self-reported history of chronic physical illnesses (e.g., diabetes, hypertension) or psychiatric disorders (e.g., anxiety, depression) at the time of enrollment.

A total of 475 eligible newly graduated nurses were invited to participate in the study through hospital management, professional nursing networks, and academic coordinators. Of these, 395 accept to participate and completed the online survey in full, yielding a response rate of 83.2%.

Sample size

The required sample size for the present study was calculated using a priori power analysis for linear regression, based on findings from Labrague et al. (2020), who reported a regression coefficient of $B=0.139$ between shock transition and stress [41]. This value was interpreted as a small effect size (Cohen's $f^2 = 0.02$). Using G*Power 3.1, with an alpha level of 0.05, a desired statistical power of 0.80, and one predictor variable, the estimated minimum sample size required to detect this effect was 395 participants [42]. This calculation followed Cohen's (1988) guidelines for determining effect sizes and sample sizes in behavioral research [43].

Tools

Characteristics of nurses

Age, gender, marital status, education level, months in nursing, Unit of assignment: "critical care unit, noncritical".

Transition shock

Transition shock refers to the emotional, cognitive, and professional disorientation that newly graduated nurses experience when transitioning from the academic environment to clinical practice. It includes disruptions in role identity, confidence, and coping capacity [44]. The Transition Shock Scale for New Nurses, developed by Kim et al. [44], has demonstrated validity. This scale was used after obtaining the approval for use. The tool consisted of 18 questions with a total of six domains as follows: Conflict between theory and practice (3 items) as feel the limitations of professional knowledge in nursing care, overwhelming workload (4 items) as pressed for time during work, loss of social support (2 items) as find it hard to find someone to share my feelings with at the hospital, shrinking relationship with co-workers (3 items) as feel frustrated with the nurses' hierarchy, confusion in professional nursing values (4 items) as I think my future as a nurse is uncertain, incongruity in work and personal life (2 items) as after I leave work, I cannot do anything due to excessive hospital work. Each item is measured on a 4-point Likert scale (1 = not at all, 4 = strongly agree). The total score ranged from 1 to 4 points, where higher scores indicated a higher level of transition shock. When the tool was developed, Cronbach's alpha was 0.89 [44], whereas in the present study, it was 0.93 [45]. Cronbach's alpha in the current study is 0.865.

The occupational stress scale

Occupational stress is defined as the physical and emotional response when job demands exceed the individual's coping resources, particularly common in high-pressure environments like healthcare [39]. The Occupational Stress Scale for Newly Graduated Nurses consists of 24

items covering four dimensions entitled 'Tasks in general care' (nine items) as Documenting nursing notes; 'Tasks in critical care' (four items), including Dealing with death and dying, 'Role/interpersonal relationship' (five items), such as Incorporating into the group, and 'Leadership and management' (six items), such as Lack of familiarity with charging fees [46]. Nurses were asked to indicate on a 5-point Likert scale, ranging from 1 (very low degree) to 5 (very high degree). The scale has good psychometric properties, including reliability (Cronbach's alpha ranges from 0.79 to 0.89 for the four stress areas and 0.93 for the total scale) and validity (Yeh & Yu, 2009). The total score ranged from 24 to 120, a high score indicating high stress. Cronbach's alpha in the current study is 0.791.

The trait coping style questionnaire

Coping style refers to the habitual cognitive and behavioral efforts used to manage stress. Trait coping style is viewed as a relatively stable personal tendency to use certain coping mechanisms over time [45]. The Trait Coping Style Questionnaire was developed by Jiang (2001) [47] and used to measure the coping style of newly graduated nurses. It consists of 20 items, with 10 for positive coping, such as trying to find solutions to the problem, and 10 for negative coping, such as blaming myself when things go wrong. Nurses were asked to report on a 5-point Likert scale which coping style they preferred to choose. The total score of the two subscales separately ranges from 10 to 50, and higher scores indicate stronger tendencies in that coping style. In the previous study, the Cronbach's alpha was 0.801 for positive coping and 0.792 for negative coping [45]. Cronbach's alpha for the current study for positive coping is 0.802, and for negative coping, it is 0.817.

The work locus of control scale

Locus of control is a psychological concept referring to individuals' beliefs about the extent to which outcomes are controlled by their actions (internal) versus external forces (external) [48]. The Work Locus of Control Scale was developed by Spector in 1988 and by Macan et al. in 1996 and used to assess control beliefs in the workplace [48, 49]. The scale is made up of 16 items with eight reverse questions. Each item is rated from 1 (disagree very much) to 6 (agree very much). The scale includes both internal and external locus of control statements, internal locus of control as a job is what you make of it, and external as most people are capable of doing their jobs well if they make the effort. Total Score Range: 16 to 96. Low scores (closer to 16): Strong internal locus of control. High scores (closer to 96): Strong external locus of control. In a previous study, the total Cronbach's alpha was 0.759 [33]. Cronbach's alpha in the current study is 0.772.

Fieldwork

In our study, data were gathered through an online survey sent to graduate nurses from various healthcare facilities. The online approach was adopted to provide maximum access while safeguarding participant identity and facilitating rapid data collection across different hospital wards and regions. Participants were recruited from professional nursing associations, hospital management, and nursing program coordinators. A short message inviting participants to take part in the study, containing its objectives, inclusion criteria, confidentiality guarantees, and ethical considerations, was placed at the start of the survey.

The online survey contained custom-made and tested tools measuring transition shock, occupational strain, coping strategies, and work locus of control, as well as capturing demographic information relevant to the participants. The survey was open for responses for a period of [4 weeks], and reminders were sent periodically to encourage participation. All responses were automatically recorded and securely stored in a database protected by a password known only to the research team. This reduces the need for manual capture operations, which are prone to mistakes, while enabling timely statistical analysis.

Ethical consideration

Ethical approval was granted by the Institutional Review Board (IRB) of MTI University in Cairo, Egypt. The IRB approval number is 143/2024. The study adhered to the ethical principles outlined in the Declaration of Helsinki. All participating nurses were provided comprehensive information about the study's purpose, objectives, and potential benefits. The researchers emphasized the study's voluntary nature, and patients could withdraw their participation without facing any consequences.

Table 1 Characteristics of studied nurses ($n = 395$)

Characteristics	no.	%
Age (years)		
Mean (SD)	21.51 (1.72)	
Gender		
Male	155	39.2
Female	240	60.8
Education level		
Bachelor	205	51.9
Technical Health Institute	190	48.1
Marital status		
Married	35	8.9
Unmarried	360	91.1
Unit of assignment		
Critical	220	55.7
Noncritical	175	44.3
Months experience in nursing / Mean (SD)	5.39 (2.84)	

SD: Standard deviation

Participation was voluntary, and electronic informed consent was obtained at the beginning of the online survey. The survey was distributed via Google Forms. Participants had to check a consent box before they could access the questionnaire and patients had the right to withdraw at any stage without any consequences. The collected data was coded to maintain confidentiality, ensuring no identifiable information was disclosed.

Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26 and AMOS. Descriptive statistics (mean, standard deviation, frequencies, and percentages) were used to summarize demographic and key variable characteristics. Pearson correlation coefficients were computed to examine the bivariate relationships among transition shock, occupational stress, coping strategies (positive and negative), and work locus of control. Correlations were interpreted using conventional effect size guidelines. To assess predictive relationships, a multiple linear regression analysis was conducted with transition shock as the dependent variable. Independent variables included occupational stress, positive and negative coping, work locus of control, and demographic factors (age, months in nursing, unit of assignment, marital status, and education level). Partial effect sizes (Cohen's f^2) were calculated for each predictor to determine their unique contributions to the model. To test mediation and moderation effects, a moderated mediation model was developed. Occupational stress was modeled as a mediator in the relationships between (1) coping strategies and transition shock and (2) work locus of control and transition shock. Marital status and unit of assignment were tested as moderators on specific paths within the model. Standardized regression coefficients (β) were reported for all direct, indirect, and interaction effects. The significance level was set at $p < 0.05$ for all statistical tests. Model fit and effect sizes were interpreted following Cohen's (1988) guidelines. All responses were complete and met the inclusion criteria; therefore, no missing data were reported and no imputation or deletion techniques were required.

Results

Table 1 presents the characteristics of the 395 newly graduated nurses included in the study. The mean age was 21.51 years ($SD = 1.72$), and the average years of experience in nursing was 5.39 years ($SD = 2.84$). The sample was predominantly female (60.8%). In terms of educational attainment, more than half of the nurses held a bachelor's degree (51.9%), while the remainder had either a technical health institute qualification (48.1%). Notably, 91.1% of the nurses were unmarried. Additionally, 55.7% of them work in critical care units.

Table 2 displays that the mean score of Transition Shock was 49.66 (SD=8.2). Occupational stress has a mean score of 80.22 (SD=14.7). According to the coping, a mean score of positive coping was 27.8 (SD=7.6), while negative coping was 32.9 (SD=5.9). In addition, Work Locus of Control was 45.46 (SD=11.7).

Table 3 presents the positive correlation between stress and transition shock as 0.66 ($p < 0.01$). Also, there is a positive correlation between negative coping and transition shock, as 0.31 ($p < 0.01$). In addition, there is a positive correlation between work locus of control and transition shock, as 0.40 ($p < 0.01$). According to Work Locus of Control, there was a positive correlation with stress as 0.43 ($p < 0.01$) and negative coping as 0.39 ($p < 0.01$), while there was a negative correlation with positive coping as 0.33 ($p < 0.01$). Additionally, there was a negative correlation between positive coping and stress as -0.44 ($p < 0.01$).

Figure 1 illustrates a moderated mediation model examining the effects of coping strategies and work locus of control on transition shock among newly graduated nurses, with occupational stress as a mediator and marital status and unit type as moderators. Positive coping exhibited a significant negative direct effect on transition shock ($\beta = -0.39$) and an indirect effect via reduced occupational stress ($\beta = -0.19$), resulting in a total effect of $\beta = -0.58$. In contrast, negative coping had a positive direct effect on transition shock ($\beta = 0.076$) and an indirect effect via increased occupational stress ($\beta = 0.004$), resulting in a total effect of $\beta = 0.080$. Also, work locus of control had a positive direct effect on transition shock ($\beta = 0.23$) and an indirect effect via increased occupational stress ($\beta = 0.12$), resulting in a total effect of $\beta = 0.35$. In addition, positive coping had a negative effect on stress ($\beta = -1.25$), work locus of control had a positive effect on stress ($\beta = 0.78$), and negative coping had a negative effect on stress ($\beta = -0.03$).

According to the moderating effects of marital status, “married” and working in a critical care unit on the stress-to-shock path were minimal but present ($\beta = 0.024$ and $\beta = 0.04$, respectively). Also, the moderating effects of marital status (“married”) and working in a critical care unit on the work locus of control-to-stress path were minimal but present ($\beta = 0.092$ and $\beta = 0.01$, respectively).

Table 2 Mean scores of transition shock, occupational stress, coping, and work locus of control ($n = 395$)

Variable	Mean	SD	Min	Max
Transition Shock	49.66	8.2	18.0	72.0
Occupational Stress	80.22	14.7	24.0	120.0
Positive Coping	27.85	7.60	10.0	50.0
Negative Coping	32.96	5.98	10.0	50.0
Work Locus of Control	45.46	11.74	16.0	80.0

SD: Standard Deviation

The multiple regression model provides compelling evidence for the psychological and contextual predictors of transition shock among newly practicing nurses. In this full model, positive coping, stress, and work locus of control emerged as strong and statistically significant predictors of transition shock. Specifically, positive coping demonstrated a robust negative association with transition shock ($B = -0.39$, $p < 0.001$), indicating that nurses who engaged in more adaptive coping strategies experienced less shock during their role transition. Similarly, work locus of control ($B = 0.24$, $p < 0.001$) and occupational stress ($B = 0.18$, $p < 0.001$) were positively associated with transition shock, suggesting that both an external locus of control and higher perceived stress contribute to heightened transitional difficulties. Notably, unit assignment and marital status were also significant predictors. Nurses assigned to non-critical care units reported substantially lower transition shock ($B = -3.94$, $p < 0.001$), while those who were married experienced significantly more shock compared to their unmarried counterparts ($B = 6.62$, $p < 0.001$).

Although variables such as age ($\beta = 0.04$, $p = 0.869$), months of nursing experience ($\beta = -0.01$, $p = 0.964$), education level ($\beta = 0.06$, $p = 0.801$), and negative coping ($\beta = 0.47$, $p = 0.088$) did not reach statistical significance, their inclusion in the model allowed for a more comprehensive evaluation of both individual and contextual influences. These non-significant findings suggest that internal psychological and situational stressors may play a more dominant role in influencing transition shock than background characteristics alone. The overall model was a strong fit to the data, explaining approximately 65% of the variance in transition shock ($R^2 = 0.646$, $F = 72.43$, $p < 0.001$); see more in Table 4.

Table 3 Correlation between coping strategies, occupational stress, and transition shock among newly graduated nurses ($n = 395$)

	Transition Shock		Occupational Stress		Positive Coping		Negative Coping		Work Locus of Control	
	r.	p.	r.	p.	r.	p.	r.	p.	r.	p.
Transition Shock			0.66	<0.01	-0.39	<0.01	0.31	<0.01	0.40	<0.01
Occupational Stress	0.66	<0.01			-0.44	<0.01	0.28	<0.01	0.43	<0.01
Positive Coping	-0.39	<0.01	-0.44	<0.01			-0.08	>0.05	-0.33	<0.01
Negative Coping	0.31	<0.01	0.28	<0.01	-0.08	>0.05			0.39	<0.01

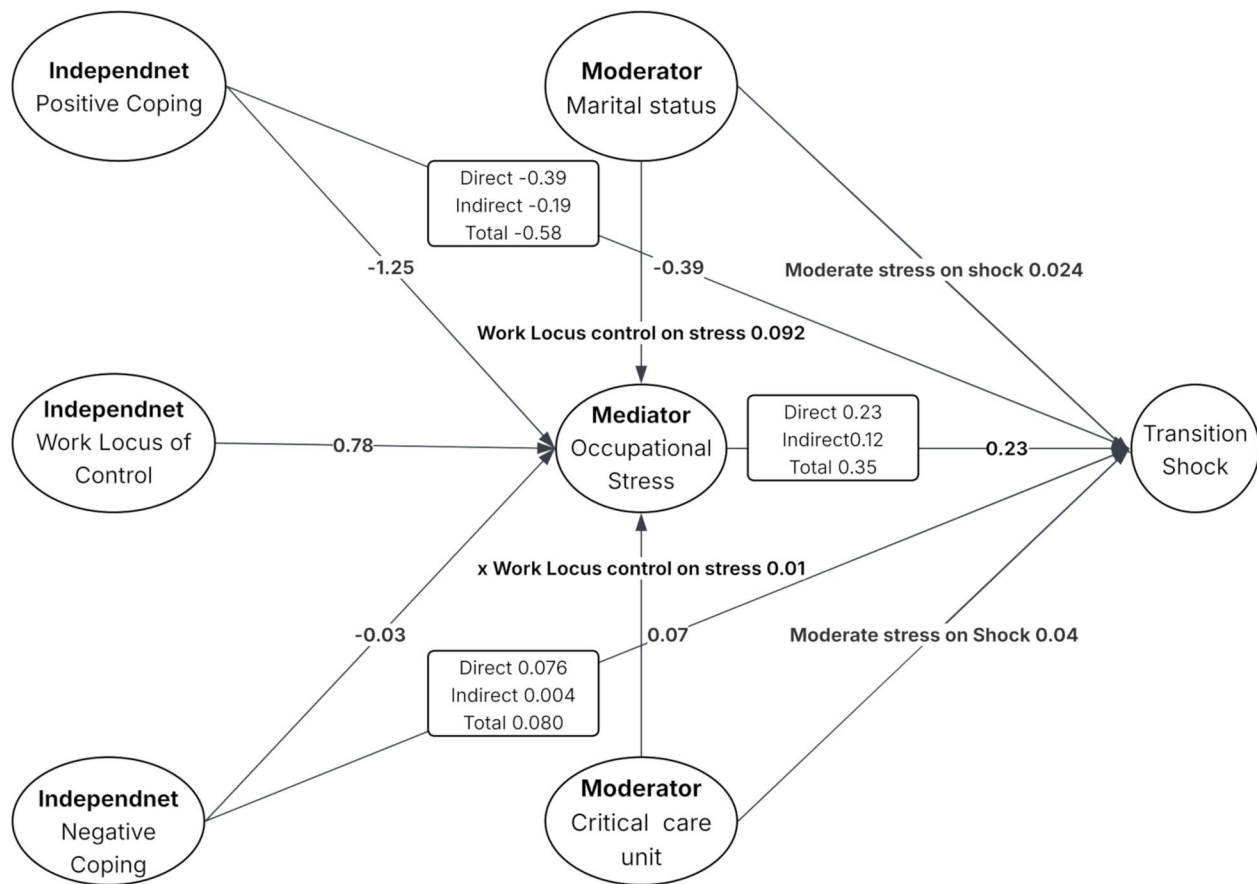


Fig. 1 Moderated mediation model of coping strategies, occupational stress, and transition shock among newly graduated nurses

Table 4 Multiple linear regression for transition shock ($n = 395$)

Variable	B	β	p	Partial Effect Size (f^2)
Occupational Stress	0.18	2.75	0.000	0.14
Positive Coping	-0.39	-2.96	0.000	0.17
Negative Coping	0.08	0.47	0.088	0.007
Work Locus of Control	0.24	2.91	0.000	0.16
Age	0.02	0.04	0.869	0.00
Months in Nursing	-0.003	-0.01	0.964	0.00
Unit of Assignment-Critical	-3.94	-1.96	0.000	0.16
Education Level_Technical Health Institute	0.12	0.06	0.801	0.00
Marital Status "Married"	6.62	1.97	0.000	0.15

$R^2 = 0.64$, $F = 72.43$, $p(\text{model}) = 0.000$ Effect size (f^2) 1.82

Discussion

This study examined the influence of occupational stress in mediating the relationship between work locus of control and coping methods (both positive and negative) concerning transition shock in freshly graduated nurses. The research investigated the moderating influences of marital status and unit of assignment (critical versus

non-critical care) on the correlation between stress and transition shock.

We observed high scores for transition shock (49.66 ± 8.2), occupational stress (80.22 ± 14.7), and a work locus of control geared towards an external locus (45.46 ± 11.74). The average score for negative coping mechanisms (32.96 ± 5.98) exceeded that of positive ones (27.85 ± 7.60). These findings mirror results from prior studies in different settings where a significant proportion of newly graduated nurses reported high transition shock [12, 41], high occupational stress [14, 17, 33], high external work locus of control [33], and negative coping mechanisms [50].

This could be explained by numerous factors; mostly, the difference between their academic background and the complex reality of clinical practice causes confusion and anxiety among newly graduated nurses. This early-career adjustment greatly increases transition shock and stress. Stress arises when perceived demands surpass available coping resources; this imbalance is frequently reported by novice nurses as they contend with unfamiliar jobs, substantial workloads, and restricted autonomy. Second, the predominance of an external locus of control

suggests that these nurses see their work environment and results as essentially controlled by external factors rather than personal activity, a pattern connected with reduced resilience and increased burnout risk. The average score for negative coping strategies exceeded that of positive coping, raising questions regarding the lack of adaptive strategies for managing occupational stress among early-career nurses.

According to the correlation statistics, positive coping is inversely linked to transition shock and occupational stress in newly graduated nurses. Also, the mediation model demonstrated that positive coping showed a significant negative direct influence on transition shock ($\beta = -0.39$) and an indirect effect through lowered occupational stress, therefore reaffirming hypotheses 2 and 5. Similarly, in a Turkish study comprising 252 freshly graduated nurses, coping style was found to be linked with high stress and degrees of transition shock [25]. Another investigation conducted in China showed a substantial correlation between adaptive coping and transition shock, resulting in reduced burnout [26].

Moreover, it was reported that negative coping is positively correlated to transition shock and occupational stress in newly graduated nurses. The mediation model demonstrated that negative coping had a positive direct effect on transition shock ($\beta = 0.076$) and an indirect effect via increased occupational stress, therefore reaffirming hypotheses 3 and 5. Demonstrating that transition shock is intensified by negative coping mechanisms, resulting in heightened work stress. This finding aligns with prior studies, indicating that maladaptive coping mechanisms, such as passive coping, predict elevated levels of burnout and secondary traumatic stress, hence exacerbating the consequences of transition shock [26, 27, 51].

These results imply that effective strategies for coping can help nurses to lessen the impact of transition shock and that those who use them feel less stressed during the demanding change from student to working nurse. Moreover, the mediation model emphasizes the linked character of these psychological constructions by showing that this effect is also somewhat funneled through a decrease in occupational stress. These findings highlight the need to encourage positive coping strategies employing focused interventions, therefore improving general well-being among new nurses and perhaps easing professional adaptation. Consequently, efficient orientation programs, preceptorship guidance, a nurturing work environment, and flexible shift arrangements should facilitate their adaptation to new work situations with reduced stress.

According to correlation analysis, external work locus of control is positively linked with shock transition and occupational stress. The mediation model demonstrated that work locus of control had a positive direct effect

on transition shock ($\beta = 0.23$) and an indirect effect via increased occupational stress, therefore reaffirming hypotheses 4 and 6. Revealing that nurses who perceive their job outcomes as influenced by external factors are more prone to encounter transition shock and occupational stress. This confirms the notion that experiencing a lack of control in the workplace might elevate stress levels, hence intensifying challenges in adjusting to new roles or situations, exacerbating the transition shock. Highlighting the significance of perceived control and stress in the adaptation processes of employees.

The current findings confirm hypotheses 7 and 8 by showing that married nurses and nurses working at non-critical wards moderate the connection between occupational stress and transition shock. The results of multiple regression analysis confirm this, with coefficients $B = 6.62$ ($p < 0.001$) and $B = -3.94$ ($p < 0.001$), respectively, indicating that married nurses experienced significantly greater stress and shock than their unmarried counterparts, while those assigned to non-critical care units reported substantially lower transition shock, and vice versa. A study was conducted among 176 newly graduated nurses examining transition shock experiences in newly graduated nurses, as well as their relative influence on job outcomes, and reported that they faced great challenges in balancing their professional and personal lives [41].

Interestingly, negative coping and education level were not significant predictors in the final regression model. This may suggest that negative coping strategies, while correlated with stress, do not exert a strong direct influence on transition shock when other variables (e.g., stress and locus of control) are accounted for. Similarly, educational background may be less influential during the early stages of clinical adjustment, as institutional factors and on-the-job stressors dominate the transition experience. The robustness of the model is further supported by its high explanatory power ($R^2 = 0.646$), indicating that nearly two-thirds of the variance in transition shock was accounted for by the combined effects of stress, coping style, locus of control, and contextual variables.

The moderation effects of marital status and unit on the stress levels of newly graduated nurses, as well as their transition shock, are multifaceted and influenced by various factors. Marital status, as a sociodemographic variable, has been shown to correlate with stress levels, suggesting that married nurses may face additional stressors related to balancing personal and professional responsibilities, thereby amplifying the impact of occupational stress. This could be ascribed to the absence of flexible work-family arrangements in their institutions, which, if available, can enhance their job satisfaction and reduce burnout levels. Such arrangements can help married nurses balance their lives more effectively, thereby reducing stress and burnout. The unit or work

environment also plays a significant role in influencing stress and transition shock; assignment to non-critical care units is linked to significantly lower levels of transition shock, highlighting the less demanding nature of these settings compared to critical care units. These factors collectively impact the experiences of newly graduated nurses as they transition into their professional roles. Overall, these results underscore the urgent need for targeted interventions, including mentorship, coping-skills training, and supportive clinical environments to ease the transition into professional nursing practice.

Conclusion

This study highlights the complex interplay between occupational stress, work locus of control, and coping strategies in shaping the transition experiences of newly graduated nurses. The findings underscore that high levels of transition shock are strongly associated with increased occupational stress, reliance on negative coping strategies, and an external work locus of control. Conversely, positive coping strategies and an internal locus of control serve as protective factors, helping to reduce stress and ease professional adaptation.

Importantly, contextual variables such as marital status and unit of assignment also influence the intensity of transition shock, suggesting that both personal and environmental factors must be considered in supporting new nurses. These results reinforce the need for holistic interventions that not only address skill development but also enhance psychological resilience and perceived control.

Implications for practice

Healthcare institutions should implement comprehensive orientation and mentorship programs tailored to the unique challenges faced by new graduates, especially in critical care units. Training initiatives should focus on enhancing positive coping strategies (e.g., time management, seeking support) and reducing reliance on negative coping mechanisms. Educational interventions that encourage self-efficacy and personal agency can improve new nurses' perceptions of control, thereby reducing transition shock and stress. Critical care units should be prioritized for enhanced support mechanisms due to their association with higher stress and transition shock. Institutions should consider flexible scheduling or family-supportive policies to help married nurses better balance work and personal responsibilities.

Limitations

Cross-sectional Design: The study's design prevents causal inferences. Longitudinal research is recommended to assess how these variables change over time. **Self-Reported Measures:** Reliance on self-reporting may introduce social desirability or recall bias. Missing

Qualitative Insights, While the quantitative approach provided valuable statistical relationships, qualitative methods could offer deeper understanding of individual experiences and contextual factors. The study was limited to hospitals in Cairo, which may restrict the generalizability of findings to other settings or countries.

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Author contributions

Conceptualization: Abdelaziz Hendy and Rasha Kadri Ibrahim, Data collection: Abdelaziz Hendy and Rasha Kadri Ibrahim, Methodology: Mirna Safi, Amani Darwish, Yasir S. Alsalamah, Lisa Babkair, Nasiru Mohammed Abdullahi. Statistical analysis: Abdelaziz Hendy and Rasha Kadri, Writing: Abdelaziz Hendy, Rasha Kadri, Lisa Babkair, Nasiru Mohammed Abdullahi, Basma maher. Editing: Manar Nasser Alotaibi, Monerh Abdullah Alfalaj, Shorok Hamed Alahmedi, Sally Mohammed Farghaly Abdelaliem. Revision: Sally Mohammed Farghaly Abdelaliem, Abdelaziz Hendy and Rasha Kadri Ibrahim.

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Data availability

The data are provided within the manuscript.

Declarations

Ethical approval and consent to participate

Ethical approval was granted by the Institutional Review Board (IRB) of MTI University in Cairo, Egypt. The IRB approval number is 143/2024. The study adhered to the ethical principles outlined in the Declaration of Helsinki. All participating nurses were provided comprehensive information about the study's purpose, objectives, and potential benefits. The researchers emphasized the study's voluntary nature, and patients could withdraw their participation without facing any consequences. Nurses were required to provide written informed consent before participating in the study. Participation was entirely voluntary, and patients had the right to withdraw at any stage without any consequences. The collected data was coded to maintain confidentiality, ensuring no identifiable information was disclosed.

Consent for publication

Not applicable.

Clinical trial number

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

¹Nursing Department, Fatima College of Health Sciences, Al Dhafra region, Madinat Zayed City, UAE

²Human Resources Department, College of Business, Australian University, Mubarak Al-Abdullah City, Kuwait

³Psychology Department, Fatima College of Health Sciences, Abu Dhabi, United Arab Emirates

⁴Department of Nursing, Mental Health Hospital, Qassim Health Cluster, Qassim, Buraydah City, Saudi Arabia

⁵Faculty of Health Science, Department of Nursing, University of Pretoria, Pretoria, South Africa

⁶Faculty of Nursing, King Abdulaziz University, Jeddah 21589, Saudi Arabia

⁷Department of Psychiatric and Mental Health and Community Health, College of Nursing, Qassim University, Bhurayda, Saudi Arabia

⁸RAK College of Nursing, RAK Medical and Health Sciences University, Ras Al Khaimah City, UAE

⁹Department of Nursing, Pediatric Emergency, King Abdullah Specialized Children Hospital, Ministry of National Guard-Health Affairs, Riyadh, Saudi Arabia

¹⁰Science in Nursing (Advanced Practice), Dublin City University, Dublin, Ireland

¹¹Department of Nursing Management and Education, College of Nursing, Princess Nourah bint Abdulrahman University, P.O. BOX 84428, Riyadh 11671, Saudi Arabia

¹²Department of Nursing Management and Education, College of Nursing, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh 11671, Saudi Arabia

¹³Pediatric Nursing, Faculty of Nursing, Ain Shams University, Cairo, Egypt

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