

Creativity and Job Stress among Nurse Managers: Moderator Role of Perceived Organizational Support (POS)

*Nema Fathy Saad ,** Hanaa Mohamed Abd Rabou

* Assistant professor of Nursing Administration, Faculty of Nursing, -Ain Shams University.

** Assistant professor of Nursing Administration, Faculty of Nursing, -Ain Shams University.

Abstract

Background: Creativity is needed to improve work quality especially in nursing. It is yet associated with challenges and thus needs organizational support. **Aims:** The study's goal is to investigate the relationships between managers' job stress, perceived organizational support (POS), and creativity in nurse managers, as well as the potential moderator role of POS in the association between stress and creativity. **Subjects and methods:** A stratified proportionate sample of 88 nurse managers was studied in a cross-sectional analytic study at six Ain Shams University Hospitals. A self-administered questionnaire with scores for stress, perceived organizational support (POS), and creativity was used to collect data. **Results:** Nurse Managers median age was 35 years, mostly females (71.6%) with bachelor's degree (80.7%). In total, 47.7% had high stress, 61.4% reported high Perceived Organizational Support (POS), 61.4% high creativity. POS scores had significant positive correlations with stress ($r=0.403$), and creativity ($r=0.457$). According to the hierarchical regression analysis, creativity and POS are good predictors of stress score. Meanwhile, POS mediates the relationship between stress and creativity. **Conclusion and recommendations:** Job stress, POS, and creativity are all linked in nurse managers, with POS acting as a moderator in the stress-creativity relationship. The study recommends continuous organizational support for nurse managers to be more creative, along with recognition and rewards for innovative ideas.

Keywords: Perceived organizational support, Creativity, Job stress, Nurse Manager.

Introduction:

Perceived Organizational Support reflects how much employees perceive their workplace, appreciates their contribution to work, and tends to endorse their wellbeing. If employees have high POS, they have a feeling of obligation to better perform their work in the reciprocation of the support they get from the workplace, with more organizational commitment (*López-Ibort et al., 2021*). Thus, they tend to develop better attitudes and behaviors toward their workplace to help in achieving its organizational goals. This would benefit workers' socio-emotional requirements as well as their subjective well-being (*Kurtessis et al., 2017; Gadolin et al., 2021*). This is particularly apparent at times of crisis, such as the COVID-19 pandemic (*Gray et al., 2022*).

Employee creativity, on the other hand, is considered a key criterion of organizational innovation. It refers to an employee's ability to generate a new concept or technique, or to develop a new useful and profitable product or service (*Hon and Lu, 2015*). The importance of creativity in nursing administration and practice has been emphasized in a study in Iran which clarified that creative vision and thinking can lead to better decision-making and thus improve the organizational effectiveness and the quality of care provided (*Cheraghi et al., 2021*). Meanwhile, creativity is considerably influenced by organizational factors that may either encourage or prohibit any innovative approaches, and thus such factors should be addressed to promote creativity and flourishing (*Ho and Chan, 2022*).

POS has a considerable effect on employees' innovative performance and creativity, and this is more evident in the rapidly evolving organizational context (*Pradhan and Jena, 2017*). In addition, the support for creativity from the supervisor and how much the supervisor supports creativity among subordinates through information and feedback is of great importance (*Hon and Lui, 2016; Wong, 2016*). Such support can enhance subordinates' interest and care for creativity through underscoring workplace top management cares about employees' creative performance (*Hu and Zhao, 2016*). Conversely, a workplace that resists creativity due to potential associated disruptive behaviors and that does not provide enabling working conditions impedes the generation of new ideas, and leads to job stress among innovative employees (*Kark et al., 2018*).

Job stress is a significant problem in administration and management due to its significant negative influences on workers' performance and quality of work, as well as their personal, psychological, and physical well-being, with sentiments of low personal achievement and organizational effectiveness (*Hon and Chan, 2013*). This is significant importance in nursing profession where the quality of service and close and frequent interactions with clients are of utmost importance. In such circumstances along with high workload and time pressure, innovation and creativity, which need time and experimentation, with the possibility of errors or failure, could be difficult and stressful (*Hon et al., 2013*).

Nevertheless, not all stress is harmful, and a low level of stress is always needed to keep employees' alertness, concentration, and enthusiasm in the face of innovation challenges at work (*Akinola et al., 2018*). However, once the stress level surpasses one's coping ability, it becomes harmful rather than beneficial. This is particularly important in today's frantic

work conditions with high load, insufficient time, high demands, and strict deadlines. In such work environments, employees feel overwhelmed and unable to be creative or innovative (*Khedhaouria et al., 2017; Sun et al., 2018*).

Significance of the research

Creativity and innovation are essential to promote work and improve its quality, particularly in a rapidly developing profession like nursing. Creativity is associated with change, and this is often associated with resistance in addition to the potential failures. In such an ambiance, nurses may be reluctant to be creative. However, helping workplace factors and employees' perception of organizational support may help alleviate creativity challenges.

Aim of the study

This study aims to assess the interrelationships between occupational stress, POS, and creativity in nurse managers, as well as the potential moderator role of POS in the stress-creativity link. According to the research hypothesis, POS acts as a mediator in the relationship between stress and creativity.

Subject and Methods

Research design: This study employed a cross-sectional analytic technique in which all dependent and independent variables were measured concurrently to determine their associations.

Study setting: The research was carried out across all departments and critical care units at Ain Shams University Hospitals. It included six main hospitals, namely Ain shams University Hospital, El demerdash Hospital, Obstetrics and Gynecology (Ob/Gyne) Hospital, Pediatrics Hospital, the Academic Heart Institute, and the Institute of Psychiatry.

Participants: All 120 working in the abovementioned settings constituted the

sampling population with no exclusion criteria. The sample size required to estimate a correlation coefficient of $r = 0.3$ or greater among stress, POS, and creativity scores at 95 percent confidence and 80 percent power was computed. The required sample size was determined using UCSF software calculations to be 83, which was then increased to 88 to account for an anticipated nonresponse rate of about 10% (Chow *et al.*, 2008). A stratified proportionate sampling technique was utilized in recruiting nurse managers in the study sample. Thus, the study sample included 31 nurse managers from Ain Shams University, 21 from El Demerdash, 11 from Ob/Gyne, 9 from Pediatrics, 8 from Academic Heart Institute, and 8 from the Institute of Psychiatry.

Data collection tools: A self-administered questionnaire with three measures for stress, POS, and creativity was provided, as well as a section for participant demographics.

▪ **Demographic characteristics:** This section was for the participant's personal data such as age, nursing qualification, marital status, residence, income, experience years, and attendance of related training courses.

▪ **Scale of Employment Organization Sources of Stress:** The stress level among nurse managers was assessed using this scale created by Telaprolu and George (2005). It consists of 79 items, each of which is assessed on a 5-point Likert scale: "never, rarely, sometimes, often, and always" covering five dimensions of stress. These are Work stressors (15 items as "Most of the time I have to force myself to start"), Personal development (16 items as "I am basically a lazy person, so I am happy with fewer responsibilities"), Role stressors (16 items as "I need to sacrifice my values in meeting my role obligations"), Organizational climate (16 items as "Considerable environment tolerance that persist in my organization makes me

irritated"), and Interpersonal relation (16 items as "I lack the freedom to ask for any sort of help when I need from my superiors").

❖ **Scoring system:** The replies from "never" to "always" were rated from 1 to 5, with positive things evaluated in reverse, such that a greater score implies a higher amount of stress. The mean scores were calculated by adding the scores for each dimension and the full scale and dividing the total by the number of elements. These were translated into percentile rankings. The nurse manager was regarded to be under stress if the percent score was 60% or more, and unstressed if the score was less than 60%.

▪ **Perceived Organizational Support (POS) scale:** This scale, originally developed by Rhoades *et al.* (2001), was used in the assessment of nurse manager's POS. It is made up of 31 items, each of which has a 5-point Likert type response. "strongly disagree" to "strongly agree." These cover support from the organization (as "Help is available from my organization when I have a problem."), supervisor (as "My supervisor shows very little concern for me"), coworkers (as "My coworkers really care about my wellbeing"), and direct report support (as "Even if I did the best job possible, my direct reports/ internal customers would fail to notice").

❖ **Scoring system:** The responses from "strongly disagree" to "strongly agree" were scored from 1 to 5, with negative items scored in reverse, such that a higher score implies a stronger level of support to get the mean score, which was then converted into a percent score, the scale scores were added up and the sum divided by the number of elements. The nurse manager was regarded to have high POS if the percentage score was 60% or more, and low POS if the percentage score was less than 60%.

▪ **Creativity Styles Questionnaire:** This scale was created by **Kumar et al. (1997)**, was employed to review nurse managers' self-perceptions of creative capacity and creative styles. It consists of 78 items with responses on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree." It has the following eight dimensions: Global creativity capacity (2 items as "I consider myself to be a creative person"); belief in unconscious processes (17 items as "Creative ideas simply occur to me without even thinking about them"); use of techniques (18 items as "I often let my mind wander to come up with new ideas"); use of other people (9 items as "When I get stuck I consult or talk with other people about how to proceed"); Final product orientation (7 items as "I work most creatively when I have deadlines"); Environmental control/behavioral self-regulation (18 items as "I tend to do my creative work in a quiet place"); Superstition (2 items as "I have a favorite amulet or clothing that I wear when I am engaged in creative work"); Use of the senses (5 items as "I tend to use my visual sense a lot in my creative work").

❖ **Scoring system:** The responses that ranged from "strongly disagree" to "strongly agree" were graded on a scale of 1 to 5, with negative comments receiving a lower number indicating greater originality. The total scale and dimension scores were added together and divided by the number of matching items to provide mean scores that were transformed into percent scores. If the percent score was 60 percent or greater, the nurse manager was thought to have strong originality, and if it was less than 60 percent, low creativity.

Tool validity and reliability: The three scales used to collect data have been shown to be valid and reliable (**Telaprolu and George, 2005; Rhoades et al., 2001; Kumar et al., 1997**). The three scales were translated into Arabic using the translate-back-translate process to guarantee their validity (**Behling and Law, 2000**). A self-

administered questionnaire was provided to nine specialists, including professors and assistant professors from the psychiatric health nursing and nursing administration departments at Ain Shams University's Faculty of Nursing, to assess its relevance and intelligibility. Based on their feedback, the questionnaire needs minor changes.

The reliability of the three scales was evaluated using the internal consistency approach. With Cronbach's alpha values of 0.979 for the stress scale, 0.981 for the POS scale, and 0.988 for the creativity scale, they were very trustworthy.

Pilot study: Prior to fieldwork, a pilot research was conducted with ten nurse managers, representing approximately 10 % of the study sample, to assess the feasibility and practicability of the study as well as the clarity of the data collection form. It was also used to estimate the time needed by each nurse manager to fill the form, and this was found to range between 25-35 minutes. The researchers undertook some necessary adjustments on the tools and procedure of data collection on the basis of the pilot results. The pilot study group did not include the nurse managers who participated in the pilot research.

Field work: After gaining official clearance to perform the study, the data collection process began. The researchers met with the nurse managers individually and invited them to join the study after fully explaining the study's purpose, procedures, and rights. Those who consented to participate were given a self-administered questionnaire and detailed instructions on how to complete it. The researchers were always on hand to answer any questions. The filled forms were then collected and revised for completion. The fieldwork was done three times a week during the morning shift. The data gathering period lasted approximately three months, commencing in early July 2021, and ending in late September 2021.

Ethical considerations: The researchers made it clear to nurse managers that participation was entirely voluntary, and that anonymity was guaranteed. They verbally agreed to take part in the study after being told they could withdraw at any moment and that the information would only be used for research.

Administrative design: The directors of the hospital under research received official letters from the nursing faculty at Ain Shams University requesting their permission to collect data. They took a copy of the data collection form and the purpose of the study. The researchers met with the medical and nursing directors of each institution to obtain permission to conduct the study and to schedule data collection.

Statistical analysis: While averages, standard deviations, and medians were employed for quantitative data, frequencies, percentages, and other descriptive statistics were used for qualitative data. Analytical statistics included Spearman's rank correlation analyses for the relations among the three scales used and with nurse managers' quantitative and ranked variables. The scores for stress, POS, and creativity were subjected to multiple linear regression analysis to determine the independent factors. To evaluate the moderating impact of POS on the relationship between stress and creativity, a hierarchical regression model containing an interaction variable was used. The statistical significance level was set at < 0.05 , SPSS 20.0 statistical software was used for all analyses.

Results

Table (1): The study involved 88 nurse managers with median age 35 years, mostly females (71.6%) with bachelor's degree (80.7%) as presented in Table 1. Approximately two-thirds or more were married (64.8%), residing in cities (77.3%), and having an adequate income (58.0%). Their median total and current job

experience was 10.0 and 3.0 years respectively. Only very few of them reported having attended training course is stress and/or creativity.

Table (2): demonstrates that slightly less than half of the nurse managers (47.7%), were having high stress, mostly related to role stress (56.8%). Approximately two-thirds of them reported high Perceived Organizational Support (POS) (61.4%) and high creativity (61.4%). Creativity was highest regarding the "global creativity capacity" (75.0%) and lowest regarding "Environmental control/behavioral self-regulation" (55.7%).

Table (3): The POS scores and stress ($r=0.403$) and POS and creativity ($r=0.457$) were shown to have statistically significant moderate positive associations, as shown in Table 3. Furthermore, the current experience years revealed statistically significant negative relationships with stress and POS ratings. Meanwhile, stress correlated positively with income.

Table (4): The multivariate analysis identified the current experience years and the work in the Institute of Psychiatry as negative predictors of the stress score. As for the POS score, its only positive predictor was being married. On the other hand, its negative predictors were female gender, income, current experience years, and working in Ob/Gyne. The table also shows that employment at the Academic heart institute was the only independent factor negatively predicting creativity score that was statistically significant.

Table (5): In the hierarchical regression analysis (Table 5) indicates that both creativity and POS are positive predictors of the stress score, Meanwhile, the interaction of creativity and POS is a negative predictor of the stress score indicating the moderator role of POS.

Table (1): Demographic characteristics of nurses in the study sample (n=88).

	Frequency	Percent
Age:		
<40	54	61.4
40+	34	38.6
Range	21-58	
Mean±SD	36.6±9.1	
Median	35.0	
Gender:		
Male	25	28.4
Female	63	71.6
Nursing qualification:		
Diploma	17	19.3
Bachelor	71	80.7
Marital status:		
Unmarried (single/divorced/widow)	31	35.2
Married	57	64.8
Residence:		
Rural	20	22.7
Urban	68	77.3
Income:		
Insufficient	51	58.0
Sufficient	37	42.0
Experience years (total):		
<20	71	80.7
20+	17	19.3
Range	1-31	
Mean±SD	11.2±7.9	
Median	10.0	
Experience years (in the position as a manager):		
<10	66	75.0
10+	22	25.0
Range	0-25	
Mean±SD	4.9±5.8	
Median	3.0	
Attended courses in:		
Job stress	15	17.0
Job creativity	12	13.6

Table (2): Distribution of studied nurse managers according to their Stress, perceived organizational support (POS), and creativity (n=88).

	Frequency	Percent
High (60%+) stress related to:		
Work	40	45.5
Personal development	48	54.5
Role	50	56.8
Organizational climate	48	54.5
Personal relations	46	52.3
Total stress:		
High	42	47.7
Low	46	52.3
Perceived Organizational Support (POS):		
High	54	61.4
Low	34	38.6
High (60%+) creativity related to		
Global creativity capacity	66	75.0
Belief in unconscious processes	60	68.2
Use of techniques	60	68.2
Use of other people	64	72.7
Final product orientation	55	62.5
Environmental control/ behavioral self-regulation	49	55.7
Superstition	55	62.5
Use of the senses	55	62.5
Total creativity:		
High	54	61.4
Low	34	38.6

Table (3): Correlation matrix of stress, Perceived Organizational Support (POS), and creativity scores with characteristics of studied nurse managers (n=80).

	Spearman's rank correlation coefficient		
	Stress	POS	Creativity
Stress	1.000		
POS	.403**	1.000	
Creativity	.186	.457**	1.000
Characteristics:			
▪ Age	.219*	.014	-.092
▪ Qualification	.007	.019	.046
▪ Experience years (total)	.171	-.042	-.128
▪ Experience years (current)	-.402**	-.359**	-.125
▪ Income	.265*	.108	-.012

at p < 0.05(*) Statistically significant

at p < 0.01(**) Statistically significant

Table (4): Best fitting multiple linear regression model for stress, perceived organizational support (POS), and creativity scores among studied nurse managers.

	Un-standardized Coefficients		Standardized Coefficients	T - test	P - value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Stress score							
Constant	3.52	0.18		19.87	<0.001	3.17	3.87
Current experience years	-0.03	0.01	-0.19	-1.96	0.05	-0.05	0.00
Institute of Psychiatry	-0.19	0.05	-0.41	-4.09	<0.001	-0.28	-0.10
r-square = 0.26 Model ANOVA: F = 14.67, p < 0.001							
Variables entered and excluded: age, gender, qualification, total experience, marital status, residence, income, training courses, unit							
Perceived Organizational Support (POS)score							
Constant	4.64	0.54		8.64	<0.001	3.57	5.71
Female gender	-0.47	0.21	-0.21	-2.24	0.03	-0.88	-0.05
Married	0.67	0.20	0.32	3.36	<0.001	0.27	1.07
Income	-0.47	0.21	-0.23	-2.30	0.02	-0.88	-0.06
Current experience years	-0.08	0.02	-0.44	-4.48	<0.001	-0.11	-0.04
Ob/Gyne-	-0.24	0.07	-0.38	-3.55	<0.001	-0.37	-0.11
r-square = 0.39 Model ANOVA: F = 10.43, p < 0.001							
Variables entered and excluded: age, qualification, residence, training courses, total experience, unit							
Creativity score							
Constant	3.37	0.16		20.999	<0.001	3.05	3.69
Academic heart institute	-0.09	0.04	-0.24	-2.340	0.022	-0.17	-0.01
r-square = 0.06 Model ANOVA: F = 5.48, p = 0.02							
Variables entered and excluded: age, gender, experience, marital status, residence, income, qualification, training courses, unit							

Table (5): A linear regression model to examine the moderator effect of Perceived Organizational Support (POS) on the influence of creativity on job stress.

	Beta Co-efficient	SE	T - test	P - value	95% confidence Interval	
					Lower	Upper
Constant	-0.41	0.81	-0.513	0.610	-2.02	1.19
Creativity score	0.88	0.30	2.933	0.004	0.28	1.48
POS score	1.07	0.35	3.074	0.003	0.38	1.79
Interaction (creativity*POS)	-0.29	0.12	-2.510	0.014	-0.53	-0.06

r-squared = 0.24

Model ANOVA: F = 9.03, p < 0.001

r-squared change for unconditional interaction (moderator effect) = 0.06 (p = 0.014)

Discussion:

The effectiveness of nurses at work has been demonstrated to be positively impacted by POS (Melile Mengesha et al., 2022) as well as their burnout and stress and intention to leave (Mai et al., 2022). The current study investigated the interrelationships between occupational stress, POS, and creativity in nurse managers, as well as the probable moderator role of POS in the link between stress and creativity. The research hypothesis is that POS acts as a moderator in the relationship between stress and creativity. The results show that all three are highly connected. POS also had a moderating effect on the link between stress and creativity, resulting in the acceptance of the predefined research hypothesis.

The current study found that more than half of the nurse managers in the study sample experienced substantial occupational stress. This is quite expected given the untoward working conditions in the study settings with high workload and shortage of nursing staff challenging nurse managers' adequate performance of their managerial and leadership functions. In agreement with this, a recent book review highlighted the increasing levels of job stress among nursing managers during the last decade (Bach2022 ,). Furthermore, a Swedish study revealed a significant association between leadership and management on the one hand and occupational stress on the other (Backman et al., 2021).

The current study's findings revealed that the dimension of role stress was the most prevalent among the five job stress categories. This reflects nurse managers' feeling of role ambiguity with contradictory instructions regarding their work from different members in the hospital, and unclear expectations from higher authority. Added to this is their concern about poor information inflow restricting their output. They may also indicate their worries about

the conflicts between their organizational and family roles and responsibilities. The findings are consistent with those reported by Nagle et al. (2021) in an Australian research of nurse unit managers, where role tension was the most commonly reported type of occupational stress. This was attributed to the structural and organizational challenges they are faced with at work and that may hamper the execution of their job. Moreover, a study in Saudi Arabia clarified the effect of role ambiguity on nurses' job stress (Alyahya et al., 2021).

Concerning nurse managers' personal factors influencing their job stress, the current study found a substantial moderate negative association between their stress levels and how long they've been in their present management job, and a weak positive correlation with their income. The negative effect of current job experience years was further confirmed in the multivariate analysis. This inverse relationship implies that the newly appointed nurse managers experience more stress in comparison to the more senior ones, which is quite understandable given the impact of the new job and the stressors related to its new obligations and tasks. On the contrary, older nurse managers could have adapted to such stressors. In line with this, an Iranian nurse study found that senior nurses had greater adaptation and dealing with pressures (Zeabadi et al., 2021).

Another factor influencing the current study of nurse managers was the workplace. The multivariate analysis identified working in the Institute of psychiatry as a negative predictor of the stress score compared with working in the other hospitals. This could be linked to the nature of employment in this institution, which may be less demanding in terms of workload and a more frantic work environment. In congruence with this, a study on the factors influencing stress and

burnout among Canadian nurses demonstrated the importance of the work environment in mitigating the effect of such stressors, and recommended that hospital leadership provides a more adequate work climate (Buckley et al., 2021).

According to the current study, nearly two-thirds of nurse managers have a high POS. This means that more than one-third of them still do not feel supported by the hospital leaders and administration. This feeling of lack of organizational support may involve support from the organization, supervisor, coworkers, and direct feedback. The low sense of POS could have a negative impact on nurse managers' performance as well as on their ability of being creative and innovative. In line with this, a study of nurse managers in Menoufyia, Egypt, found that only about half of them had a high level of POS, and their POS scores were negatively correlated with their perception of work challenges during the COVID-19 pandemic, indicating a better ability to cope and perform during crises (Gab Allah, 2021).

As for the factors related to nurse manager POS, the current study revealed a significant negative correlation with their current experience years. The multivariate analysis also corroborated this. The finding could be explained by that newly appointed nurse managers might receive more support from hospitals and nursing leaders to encourage them to perform more adequately in their new job positions.

Other nurse managers' personal factors significantly related to their POS scores in multivariate analysis were being married, which was identified as a positive predictor, gender and income, which were negative predictors. The positive impact of being married could be explained by more tolerance and flexibility regarding timetables and scheduling, taking into account their family roles and obligations. On the other hand, the negative impact of female gender might be attributed to the more care

provided to male nurse managers as newcomers to the nursing profession needing more support. In accordance with this, a study of POS among nurses and other healthcare providers in Cyprus reported lower POS among female ones (Chatzittofis et al., 2021).

As regards the workplace factors affecting nurse managers' POS, the current study multivariate analysis identified working in the Obstetrics and Gynecology hospital as a negative predictor. Thus, the nurse managers working in this hospital have a lower perception of organizational support in comparison with the other studied hospitals. This could be because of the hectic nature of the work in this hospital necessitating stricter work conditions with many unexpected and frequent changes in the work schedule. In keeping with this, a Japanese study found that hectic work conditions such as long hours and rotating shifts are important factors connected with exhaustion and stress among nurses (Kida and Takemura2022 ,).

The present study has also assessed nurse managers' creativity. According to the data, less than two-thirds of them show a high level of creativity. This was highest regarding global creativity capacity and use of other people. The findings reflect the nurse managers high view of creativity, and in addition it indicates that their creativity is depends on their cooperation with others or in a group rather than working individually on innovation. Thus, they tend to discuss new ideas with colleagues and with others rather than being isolated and working with them in secrecy. In line with this, it has been established that employees are more creative when they work in groups than alone (Anderson et al., 2014).

Concerning the personal traits of nurse managers that are strongly associated with their creativity, the current study analyses were unable to identify and association with any of these characteristics.

However, the workplace was shown to have a significant influence on their creativity. Thus, the multivariate analysis identified their work in the Academic Heart Institute as an independent negative predictor of their creativity score. Thus, those who work in this hospital seem to be less creative in comparison with their peers in the other studied hospitals. This might be attributed to the rigorous academic rules prevailing in this hospital, which may be reluctant to accept any innovative ideas from nurse managers.

This study's main objective was to examine the potential moderator role of POS in the relationship between stress and creative thinking. The multiple regression analysis demonstrated that either creativity or POS alone positively predicts stress. The high feeling of POS without ability to be creative could pose some burden and lead to stress among noncreative nurse managers. Meanwhile, the association between creativity and stress has been reported previously; yet although creativity is associated with more stress, it reciprocally improves the wellbeing of the innovative individual (Tan et al., 2021; Fiori et al., 2022).

The current study examined into whether POS acts as a moderator in the link between stress and creativity. The study hierarchical regression analysis demonstrated such a moderator effect where high POS leads to more creativity with less stress, whereas at low POS more creativity is associated with more stress. This indicates that POS interacts with creativity as an independent variable leading to a significant effect of stress as a dependent variable, and this effect depends on the level of POS as a moderator. This is quite understandable since the feeling of being backed up by organizational support could alleviate the potential stress the innovator the nurse manager may feel from the possibility of failure. This consequently may foster innovation and creativity. The positive

impact of POS on creativity has been previously demonstrated in a study in South Korea through its action on leader-member exchange (Choi et al., 2021). Similar outcomes were observed in a more recent Chinese investigation (Fan et al., 2022). Furthermore, POS was found to mitigate the association between job stress and intention to leave among Chinese nurses, showing its considerable effect on job stress reduction and its implications (Lai et al., 2022).

Conclusion and recommendations

Job stress, POS, and creativity are all associated in nurse managers. The connection between stress and creativity is mediated by POS. The study recommends continuous organizational support for nurse managers to be more creative, along with recognition and rewards for innovative ideas. Inhibiting factors in the work environment such as high workload and staff shortage should be addressed.

References

- Akinola M., Kapadia C., Lu J., and Mason M. (2018): Incorporating Physiology into Creativity Research and Practice: The Effects of Bodily Stress Responses on Creativity in Organizations. *Academy of Management Perspectives*; 33:163-184.
- Alyahya S.A., Al-Mansour K.A., Alkohaiz M.A., and Almalki M.A. (2021): Association between role conflict and ambiguity and stress among nurses in primary health care centers in Saudi Arabia during the coronavirus disease 2019 pandemic: A cross-sectional study. *Medicine (Baltimore)*;100(37):e27294. doi: 10.1097/MD.00000000000027294. PMID: 34664892; PMCID: PMC8447988.
- Anderson N., Potocnik K., and Zhou J. (2014): "Innovation and creativity in organizations: a state-of-the-science review, prospective commentary, and

- guiding framework”, *Journal of Management*; 40(5): 1297-1333.
- Bach S. (2022):** Book Review: Who Cares? Attracting and Retaining Care Workers for the Elderly.
- Backman A., Sjögren K., Lövheim H., Lindkvist M., and Edvardsson D. (2021):** The influence of nursing home managers' leadership on person-centred care and stress of conscience: A cross-sectional study. *BMC Nurs.*;20(1):200. doi: 10.1186/s12912-021-00718-9. PMID: 34654423; PMCID: PMC8518168.
- Behling O., and Law K. (2000):** In: *Translating questionnaires and other research instruments: Problems and Solutions.* Lewis-Beck MS, editor. Thousand Oaks: Sage, pp. 1–70.
- Buckley L., Berta W., Cleverley K., and Widger K. (2021):** The Relationships Amongst Pediatric Nurses' Work Environments, Work Attitudes, and Experiences of Burnout. *Front Pediatr.*;9:807245. doi: 10.3389/fped.2021.807245. PMID: 34993167; PMCID: PMC8724778.
- Chatzittofis A., Constantinidou A., Artemiadis A., Michailidou K., and Karanikola M.N.K. (2021):** The Role of Perceived Organizational Support in Mental Health of Healthcare Workers During the COVID-19 Pandemic: A Cross-Sectional Study. *Front Psychiatry.*;12:707293. doi: 10.3389/fpsyt.2021.707293. PMID: 34790134; PMCID: PMC8591071.
- Cheraghi M.A., Pashaeypoor S., Dehkordi L.M., and Khoshkest S. (2021):** Creativity in Nursing Care: A Concept Analysis. *Florence Nightingale J Nurs.*;29(3):389-396. doi: 10.5152/FNJV.2021.21027. PMID: 35110178; PMCID: PMC8939908.
- Choi W.S., Kang S.W., and Choi S.B. (2021):** Innovative Behavior in the Workplace: An Empirical Study of Moderated Mediation Model of Self-Efficacy, Perceived Organizational Support, and Leader-Member Exchange. *Behav Sci (Basel).*;11(12):182. doi: 10.3390/bs11120182. PMID: 34940117; PMCID: PMC8698413.
- Chow S.C., Shao J., and Wang H. (2008):** Sample size calculations in clinical research. 2nd ed., Boca Raton: Chapman & Hall/CRC, Section 3.2.1, page 58.
- Fan C., Tang S., Chen L., and Sun T. (2022):** Perceived Organizational Support and Proactive Innovation Behavior: The Mediating Role of Basic Psychological Needs. *Front Psychol.*; 13:804363. doi: 10.3389/fpsyg.2022.804363. PMID: 35369198; PMCID: PMC8971370.
- Fiori M., Fischer S., and Barabasch A. (2022):** Creativity is associated with higher well-being and more positive COVID-19 experience. *Pers Individ Dif.*; 194:111646. doi: 10.1016/j.paid.2022.111646. Epub 2022 Apr 6. PMID: 35400778; PMCID: PMC8983605.
- Gab Allah A.R. (2021):** Challenges facing nurse managers during and beyond COVID-19 pandemic in relation to perceived organizational support. *Nurs Forum.*;56(3):539-549. doi: 10.1111/nuf.12578. Epub 2021 Apr 19. PMID: 33870510; PMCID: PMC8250948.
- Gadolin C., Skyvell Nilsson M., Ros A., and Törner M. (2021):** Preconditions for nurses' perceived organizational support in healthcare: a qualitative explorative study. *J Health Organ Manag.*;35(9):281-297. doi: 10.1108/JHOM-03-2020-0091. PMID: 34523305.

- Gray C.E., Spector P.E., Wells J.E., Bianchi S.R., Ocana-Dominguez C., Stringer C., Sarmiento J., and Butler T. (2022):** How Can Organizational Leaders Help? Examining the Effectiveness of Leaders' Support During a Crisis. *J Bus Psychol.*; 11:1-23. doi: 10.1007/s10869-022-09810-6. Epub ahead of print. PMID: 35431433; PMCID: PMC8995167.
- Ho H.C.Y., and Chan Y.C. (2022):** Flourishing in the Workplace: A One-Year Prospective Study on the Effects of Perceived Organizational Support and Psychological Capital. *Int J Environ Res Public Health.*;19(2):922. doi: 10.3390/ijerph19020922. PMID: 35055747; PMCID: PMC8775957.
- Hon A.H.Y., and Chan W.W.H. (2013):** "The effects of group conflict and work stress on employee performance", *Cornell Hospitality Quarterly*; 54(2):174-184.
- Hon A.H.Y., and Lu L. (2015):** "Are we paid to be creative? The effect of compensation gap on creativity in an expatriate context". *Journal of World Business*; 50(1):159-167.
- Hon A.H.Y., and Lui S.S. (2016):** employee creativity and innovation in organizations: review, integration, and future directions for hospitality research". *International Journal of Contemporary Hospitality Management*; ISSN: 0959-6119
- Hon A.H.Y., Chan W.W.H., and Lu L. (2013):** "Overcoming work-related stress and promoting employee creativity in hotel industry: the role of task feedback from supervisor", *International Journal of Hospitality Management*; 33: 416-424.
- Hu B., and Zhao Y. (2016):** Creative self-efficacy mediates the relationship between knowledge sharing and employee innovation. *Social Behavior and Personality: An International Journal*; 44(5): 815-826.
- Kark R., Van Dijk D., and Vashdi D.R. (2018):** Motivated or demotivated to be creative: The role of self-regulatory focus in transformational and transactional leadership processes. *Applied Psychology: An International Review*; 67: 186-224.
- Khedhaouria A., Montani F., and Thurik R. (2017):** Time Pressure and Team Member Creativity within R&D Projects: The Role of Learning Orientation and Knowledge Sourcing. *International Journal of Project Management*; 35: 942-954.
- Kida R., and Takemura Y. (2022):** Working conditions and fatigue in Japanese shift work nurses: A cross-sectional survey. *Asian Nurs Res (Korean Soc Nurs Sci.)*; S1976-1317(22)00013-5. doi: 10.1016/j.anr.2022.03.001. Epub ahead of print. PMID: 35304328.
- Kumar V., Kemmler D., and Holman e (1997):** The creativity styles questionnaire revised. *Creativity Research Journal*; 10(1): 320-323 DOI: 10.1207/s15326934crj1001_6.
- Kurtessis J., Eisenberger R., Buffardi L.C., Stewart K.A., and Adis C.S. (2017):** Perceived organizational support: a meta-analytic evaluation of organizational support theory. *J. Manag.*; 43: 1854–1884. doi: 10.1037/a0022676
- Lai H., Hossin M.A., Li J., Wang R., and Hosain M.S. (2022):** Examining the Relationship between COVID-19 Related Job Stress and Employees' Turnover Intention with the Moderating Role of Perceived Organizational Support: Evidence from SMEs in China.

- Int J Environ Res Public Health.;19(6):3719. doi: 10.3390/ijerph19063719. PMID: 35329404; PMCID: PMC8953488.
- López-Ibort N., Cañete-Lairla M.A., Gil-Lacruz A.I., Gil-Lacruz M., and Antoñanzas-Lombarte T. (2021):** The Quality of the Supervisor-Nurse Relationship and Its Influence on Nurses' Job Satisfaction. *Healthcare (Basel)*.;9(10):1388. doi: 10.3390/healthcare9101388. PMID: 34683067; PMCID: PMC8544584.
- Mai T., Todisco L., Schilder M., Franke V., and Ristau J. (2022):** Die Situation der Pflegenden in Akutkrankenhäusern während der zweiten Welle der COVID-19-Pandemie [The situation of nurses in hospitals during the second wave of the COVID-19 pandemic: an online survey]. *Pflege*.;35(2):104-113. German. doi: 10.1024/1012-5302/a000846. Epub 2021 Oct 21. PMID: 34672205.
- Melile Mengesha B., Moga Lencha F., and Ena Digesa L. (2022):** Pain assessment practice and associated factors among nurses working at adult care units in public hospitals in Wolaita Zone, Southern Ethiopia, 2021. *BMC Nurs*.;21(1):115. doi: 10.1186/s12912-022-00892-4. PMID: 35562827; PMCID: PMC9102635.
- Nagle C., Omonaiye O., and Bennett P.N. (2021):** Valuing nurse and midwifery unit managers' voices: a qualitative approach. *BMC Nurs*.;20(1):160. doi: 10.1186/s12912-021-00680-6. PMID: 34488718; PMCID: PMC8419908.
- Pradhan R.K., and Jena L.K. (2017):** "Employee performance at workplace: conceptual model and empirical validation", *Business Perspectives and Research*; 5(1): 69-85.
- Rhoades L., Eisenberger R., and Armeli S. (2001):** Affective commitment to the organization: The contribution of perceived organizational support. *Journal of Applied Psychology*; 86: 825-836.
- Sun J.M., Chen L.N., and Yin K. (2018):** When Challenge Stressors Increase Employee Innovative Behaviors? The Role of Leader Member Exchange and Abusive Supervision. *Acta Psychologica Sinica*; 50: 436-449.
- Tan C.Y., Chuah C.Q., Lee S.T., and Tan C.S. (2021):** Being Creative Makes You Happier: The Positive Effect of Creativity on Subjective Well-Being. *Int J Environ Res Public Health*.;18(14):7244. doi: 10.3390/ijerph18147244. PMID: 34299693; PMCID: PMC8305859.
- Telaprolu and George, (2005):** stressors and their sources in employment organization development of Employment organization sources of stressors scale (Eoss). *Indian Journal of Social Research*; 46(4): 335-346.
- Wong I.K.A. (2016):** "Linking firms, employees, and customers: a multilevel research agenda for hospitality studies", *Cornell Hospitality Quarterly*;(1): 7-20. doi: 10.1177/1938965515578715.
- Zeabadi S.M., Hasandoost F., Momeni M., Goudarzi A.H., and Hosseinigolafshani S. (2021):** Predictors of cognitive emotion regulation strategies: Iranian nurses. *J Educ Health Promot*.;10(1):188. doi: 10.4103/jehp.jehp_1002_20. PMID: 34250122; PMCID: PMC8249965.