Relationships between Job Strain, Coping Strategies, and Work Performance among Oncology Nurses Working in Saudi Oncology Care Settings

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Abstract: Job strain is reported to affect coping strategies and work performance among nurses, thus compromising oncology nursing care and placing patients' lives at risk. A review of the literature has revealed that although a great deal of research has been conducted internationally about job strain, coping strategies, and work performance in nurses, very little of this research has included oncology nurses in the Kingdom of Saudi Arabia. A predictive, correlational cross-sectional study was conducted with 241 oncology nurses from five hospitals to explore the possible mediating effects of coping strategies on the relationship between job strain and work performance. A survey instrument, based on pre-existing standardized tools, including demographic and work items, was used. The data were analyzed using Statistical Package for the Social Sciences (SPSS 22) and AMOS 21.0 software package. Structural equation modeling was used to test the study model that proposed a mediating effect for coping strategies on job strain and work performance. Study findings demonstrated that participants experienced low to high levels of job strain. Coping strategies significantly partially mediated job strain/ on work performance among oncology nursesin Kingdom of Saudi Arabia. Nursing managers must be aware of the role of coping strategies in reducing job strain and improving work performance among oncology nurses.
Keywords:coping strategies, job strain, Kingdom of Saudi Arabia, oncology nurses, work performance

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I. Introduction

The extent to which an employee is exposed to a variety of job factors such as work overload, lack of job control, poor social support, professional conflict, and excessive emotional demands of the job [1,2], and ethical dilemmas when working within a cross-cultural context [3] can result in job strain. For the purpose of this study, job strain is theorized as a pattern of responses that occur when a disparity exits between job demands and the level of control employees have to satisfy those demands, thereby challenging their ability to cope [4,5].Job strain and its increasing severity was reported in a number of nursing studies[1,6,7]. Among nurses, job strain has also been identified as a major contributing factor to job dissatisfaction, attrition rates, and job turnover [8,9]. In addition, job strain was reported to reduce work performance leading to interference in how effective nurses are in accomplishing their direct patient care tasks and responsibilities [6,10]. Furthermore, a reduced quality of nursing care delivery as a result of job strain and inadequate coping resources is a risk factor for patient safety [1,11]. Job strain has been shown to cause stress that can be associated with how well nurses are able to cope with their work situations [7,11,12]. Research has also suggested that individual and work characteristics such as age, educational background, nursing experience, and type of hospital affect perceptions about stressful situations, including strategies used to cope with work performance[9,10,12].

There is an increasing demand for cancer care and oncology nursing services inthe Kingdom of Saudi Arabia (KSA) due to population growth and increased life expectancy and, more significantly, due to the increasing number of cancer cases [13]. Cancer is one of the leading causes of death in the KSA [13]. It falls to oncology nurses to provide the bulk of care for these KSA patients with cancer. According to Alqahtani et al. [14] these nurseshave reported heavy workload due to overcrowding with cancer patients in theirhospitals, leading to staff and other resource shortages. Other research has shown thatoncology nurses working in two Saudi hospitals in Eastern Region, strongly agreed with the assertion that they experienced moderate to high levels of job strain [15].Among oncology nurses, job strain has an impact on nurses' coping and workperformance, including diminished nursing care quality [7,12]. The perception of job strain and its effects on nurses' work performance may differ significantly in different work settings [10]. There is a paucity ofstudies outside of Western nations that focus on understanding the impact of job strain ononcology nurses. Hence a study of oncology nurses working in the KSA would extend understanding of this phenomenon.The

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purpose of this study was to investigate relationships among job strain,coping strategies, and work performance in a sample of oncology nurses working in theKSA. This study explored the possible mediating effects of coping strategies on therelationship between job strain and work performance. The specific research questionwas: Do coping strategies mediate the effect of job strain on work performance amongoncology nurses working in KSA oncology care settings?

II.   Theortical Framework

The study was guided by Karasek's Job Demand-Control (JDC) Model [4]and Lazarus and Folkman's Transactional Model of Stress and Coping [16]. Accordingto Karasek's JDC model, job strain is theorized as the combination of a high levelof psychological workload demands and low work-related decision latitude [4]. Job demandrefers to the psychological stressors present in the work setting such as workload demand,time constraints, conflicts, ambiguities about the obligations and needed skills in a job[4]. Decision latitude, which refers to one's ability to influence work tasks,has two constructs – decision authority and skill discretion [4]. High-strainjobs are defined by working conditions of high job demands combined with low decisionlatitude [4]. In Karasek's model, the resulting stress can be reduced ifemployees have enough decision authority and the ability to utilize a range of skills intheir job. Long-term exposure to high strain conditions can lead to low work performanceand health related problems such as fatigue, emotional exhaustion, anxiety, depression,and physical disorders [4,5].

Lazarus and Folkman [16] have documented two fundamental coping strategiescarried out by individuals within their work environments, emotion-focused (EFCSs) andproblem-focused (PFCSs). Problem-focused coping strategies involve adjusting actionsthat include altering or managing the problem within either the individual or theenvironment, alternatively it may represent actions or activities that are considered todirectly resolve the problem [16]. Problem-focused coping strategies assist the individual to deal with an environmental situation by identifying thesource of stress, decreasing stress manifestations related to the condition, or changingone's thinking about the situation (e.g. discovering different ways of satisfaction)[16]. On the other hand, EFCSs refer to actions that an individualtakes to change individual attitudes towards their emotions caused by external stimuli[16]. Emotion-focused coping strategies may include activitiessuch as complaining and escape-avoidance, all resulting in negative outcomes fordecreasing the sense of stress [16]. Coping strategies have beenshown to be mediators of the relationship between burnout, psychological illness, jobstrain, job dissatisfaction, and work performance [16]. Based onthis, the JDC model and the Lazarus's Transactional Model of Stress and Coping offercompelling evidence of the effects of job strain and coping on individuals' workperformance. There is also evidence of a mediating effect of coping strategies on therelationship between job strain and work performance.

III.   Model Tested In Study

The proposed model tested in this study was hypothesized that oncology nurseswho experienced high levels of job strain in combination with lower coping levels(EFCSs) tend to have lower work performance. As the model illustrates, job strain isdefined as the combination of a high level of psychological job demands and lowdecision latitude. Job strain among oncology nurses was anticipated to have a negativeeffect on work performance in the presence of EFCSs.

IV.   Research Methods

4.1Design and Sample

A non-experimental, predictive, cross sectional design was used to test the hypothesized study model. Convenience, non-probability sampling was used to select thestudy participants. The total number of eligible oncology nurses from the five largehospitals, four public and one private, that provide adult and pediatric cancer care inMakkah and Jeddah cities, KSA was 500 (The total number of oncology nurses in eachhospital varied between 40 - 197 nurses). Although there is no universal agreement on theminimum acceptable sample size or calculation of sample size estimates for the SEManalysis [17], researchers have recommended that a minimum samplesize of 200 is required for SEM statistical analyses [18]. Therefore, a sample of200 registered oncology nurses working in Saudi oncology care settings was deemed toyield adequate power in this study. Ethics approval was obtained from the University ofWestern Ontario (UWO), and from participating KSA hospitals research ethics boards.

4.2Inclusion/Exclusion Criteria

Participants in this study were selected based on the following criteria: (a) mustbe a qualified registered nurse, (b) work as full-time staff for at least six months in theKSA's oncology care setting, (c) provided direct care as an oncology staff nurse inoutpatient or inpatient oncology unit, (d) work in oncology units and clinics, (e) read,understand and speak English fluently, and (f) willing to participate in the study. Thefollowing

categories of nurses were excluded from the study: (a) part-time staff, (b) staffon leave (sick, injury and maternity leave), and (c) nurses not working in oncology areas(d) non-direct care nursing employees.

4.3 Data Collection Procedures

In organizations, meetings were held with the nurse director and/or nursingresearch coordinator to obtain their organization's agreement to participate in the studyand to discuss best approaches to recruit oncology nurses in their healthcare settings.Initial contact to potential participants was also made through a researcher developed emailthat was distributed by nursing directors to all nurses working in their hospital'soncology units. An e-mail follow-up and/or personal meeting with the researcheroccurred to ensure questions regarding the study were answered satisfactorily beforeobtaining participants' agreement to proceed. Consent to participate in the research studywas constituted by oncology nurse's return of his/her completed questionnaire, which wasin English and comprised of job strain, coping strategies and work performance tools, aswell as individual and work characteristics. A sealed box was placed at each oncologyunit to facilitate completed questionnaire collection. Questionnaires took on average 30minutes for oncology nurses to complete. A total of 241 of the 429 questionnaires werecompleted and returned for a completion rate of 56%. The data were collected in a 1-month period between July and August of 2014.

4.4 Instruments

The study survey included three standardized instruments related to the main study variables: job strain assessed by the Job Content Questionnaire (JCQ) [4], coping strategies assessed by the Revised Ways of Coping Questionnaire (RWCQ) [16], and work performance as assessed by the Six Dimension Scale of Nursing Performance (6-DSNP) [19]. The survey also included individual and work characteristics section to identify age, gender, country of origin, nursing education, nursing experience, oncology training/education, oncology unit, and type of hospital.The JCQ is a 14-item questionnaire used to measure psychological job demands and decision latitude rated on a 4-point Likert scale (strongly disagree, disagree, agree, and strongly agree). It is comprised of two subscales: psychological job demands (5-items) and decision latitude (9-items). The job strain score was calculated using the difference between mean psychological job demands and mean decision latitude [20]. Higher scores reflected higher levels of job strain.

The RWCQ is a 50-item instrument used to measure the pathways individuals utilize to cope or deal with stressful conditions rated using a 4-point Likert scale (0 "does not apply and/or not used," 1 "used somewhat," 2 "used quite a bit," and 3 "used a great deal"). The RWCQ contains two constructs: PFCSs construct contains four subscales: self-controlling (7-items); accepting responsibility (4-items); planful problem-solving (6-items); and positive reappraisal (7-items). The EFCSs construct contains a further four subscales: confrontive coping (6-items); distancing (6-items); seeking social support (6-items); and escape-avoidance (8-items). To score the RWCQ, all items in each sub-scale are summed o obtain a coping strategy score, these eight scores are termed the "raw scores". A combined score (PFCSs/EFCSs sub-scales' scores) was used to measure coping strategies among oncology nurses in this study.

The 6-DSNP is used to assess and evaluate nurses' work performance in client-care settings contains 52 items measuring six subscales: Interpersonal Relations/Communication (12-items), Leadership (5-items), Critical Care (7-items), Teaching/Collaboration (11-items), Planning/Evaluation (7-items), and Professional Development (10- items) and uses a 4-point rating scale to rate the items as to how often and how well they carried out the behaviour/item. Their scores are calculated based on the average of ratings on behaviours/items per sub-scale. Higher scores are assumed to indicate better work performance. All values of Cronbach's alpha in this study were equal to or greater than 0.65, suggesting acceptable study instrumentreliability.

4.5 Data Analysis

A combination of the Statistical Package for Social Sciences (SPSS 22) and AMOS 21.0 statistical software package were used forall statistical analyses. Descriptive statistical analyses were conducted to describe thesample demographics, means, and standard deviations of the major study variables withinthe study model. Appropriate measures of correlation and tests for differences betweenmeans were conducted to examine relationships between selected demographic variablesand major study variables. Four hypothesized relationships were analyzed: (a) the directrelationship between job strain and coping strategies, (b) the direct relationship betweenjob strain and work performance, (c) the direct relationship between coping strategies andwork performance, and (d) the indirect effect of job strain on work performance asmediated by coping strategies.

V. Results

5.1 Descriptive Analysis

Individual and work characteristics of the sample are shown in Table 1. Themajority of participants were female (88%), aged between 26 and 35 (*M*= 32.46, *SD*=7.77). Most of the questionnaires (90%) were completed by non-Saudi nationals, withonly 10 % completed by Saudis. About 67.6% of the participants held a bachelor degreein nursing, 30.7% held a diploma in nursing, and 1.7% held a master degree in nursing.More than half of the participants (56.4 %) had advanced preparation/specializededucation in oncology nursing with hospital provided in-service training identified as themost common type of specialized oncology education reported by the participants.Approximately 81.3% of the participants were working in publicly funded hospitals andthe remaining participants were working in the privately funded hospital (18.7%).

As seen in Table 2, the observed means for the JCQ sub-scales were 25.99 (*SD*=4.10) for the psychological job demands scale and 70.15 (*SD*=8.63) for the decisionlatitude sub-scale. Job strain as computed by the subtraction approach resulting in a meanof -0.70 and a standard deviation of 0.55. The observed means for the coping sub-scaleswere 43.89 (*SD* =11.22) for the PFCSs sub-scales and 42.46 (*SD* = 10.88) for the EFCSssub-scales, suggesting slightly higher utilization of PFCSs by oncology nurses in thisstudy. Based on the obtained results, positive reappraisal (*M*=13.24, *SD*=4.12), self-control(*M*=12.20, *SD* = 3.29), and escape-avoidance (*M*=12.01, *SD*=4.44) are the mostutilized coping strategies by the study participants. The observed means for the workperformance sub-scales ranged from 16.82 to 42.41 for the Leadership (*M*=16.82),Critical Care (*M* = 24.65), Planning/Evaluation (*M*=24.83), Teaching/Collaboration (*M*=36.43), and Interpersonal relations/Communication (*M* =42.41).

5.2 Job Strain, Coping Strategies, Work Performance, and Work Characteristics

The main study variables were examined by their work characteristics aspresented in Table 3. The participants with advanced preparation/education in oncologynursing reported lower levels of job strain than those without any oncology preparation(mean difference score of -0.15 (t (227.9) = 2.092,*p*< 0.05). There was a significantdifference in job strain mean scores between respondents working in public and privatefunded hospitals with a mean difference score of -0.14 (t (96) = 2.086,*p*< 0.05).Moreover, a significant difference in coping strategies of respondents working in thesehospitals with a mean difference score of -10.19 (t (90.4) = -.3.85,*p*< 0.001). Thepublicly funded hospitals had the highest job strain mean scores (*M*= -0.58, *SD*=0.39),and the lowest coping strategies mean scores (*M*=78.07, *SD*=14.64). These resultsindicated that there was a significant difference in work performance mean scoresbetween participants who had and had not advanced preparation in oncology nursing witha mean difference score of -.175 (t (208.3) = -2.79,*p*< 0.01). Significant differences inwork performance means were also found among nurses working in different oncologyunits (F (4) = 3.78,*p*< 0.01). Participants working in surgical and pediatric oncologyunits reported lower levels of work performance (*M*=3.29, *SD*=.597) and (*M*=3.49, *SD*=.496) respectively. Also, there was a significant difference in work performance meansfor those working in privately and publicly funded hospitals (*M*= -.619,*t* (52.6) = -6.82,*p*< 0.001). The privately funded hospital had the highest work performance mean score (*M* =3.57, *SD* =.37).

5.3 Testing theHypothesized Model

The overall fit of the hypothesized model was tested using structural equation modeling (SEM), with the basic causal model, including the hypothesized relationships, presented in Fig. 1. The model Chi-square divided by degrees of freedom is 3.37. The RMSEA of 0.1 was greater than 0.08, suggesting a poor fit in the structural model [21]. However, as shown in Table 4, all the other fit indices used suggested a good fit for the data with the study model. The standardized path estimates indicated the model effects, showing all the model values as significant (Table 5). All Critical Ratio (CR) values were greater than 0.5, indicating high reliability. Therefore, the analysis provided qualified support of the proposed model of job strain, coping strategies, and KSA oncology nurses' work performance. The standardized estimate for the direct effect between job strain and coping strategies was -0.29, while the direct effect between job strain and oncology nurses' work performance was -.0.22, and between coping strategies and work performance was 0.31 (all $p < 0.05$). The coefficient for the (mediated) indirect effect between job strain and work performance by way of coping strategies was -0.09. Thus, the total estimated effect between job strain and work performance was -0.31. Based on these results, the latent variable "coping strategies" was found to be a mediator between job strain and work performance.

VI.   Discussion

The purpose of this study was to examine the effects of job strain and copingstrategies on oncology nurses' work performance. The results of this study indicated thatjob strain significantly impacted on nurses' coping strategies, and that both job strain andcoping strategies made significant contributions to the work performance of KSAoncology nurses. The study results show that job strain had a negative impact on workperformance, and findings supported a partial mediation effect of coping strategies on jobstrain. It was found that oncology nurses who adopted PFCSs in dealing with job straintended to report higher levels of work performance, thus it is

possible that PFCSsmediated the negative consequences of job strain on oncology nurses' work performance.Consistent with the Transactional Model of Stress and Coping [16], workers' reactions to their stressful experience in the workplace possibly impactedon their mental status, which consequently may decrease the level of their performance.

The study findings emphasize the importance of coping strategies in improving KSAoncology nurses' work performance and reducing the effects of job strain. There is a needfor further research to identify factors that would reduce job strain negative effects, andenhance coping strategies, and coping resources among oncology nurses in the differentKSA oncology care settings. The findings of this current study indicated that there was a significant negativerelationship between job strain and work performance ($r = -0.22, p < 0.05$). Thesefindings concur with previous a study by Al-Homayan et al. [6] who reported that jobstrain led to poor work performance and was a risk factor for patient safety. However, inanother study conducted in the KSA by Alshammari [22], a U-shaped relationshipbetween job stressors and work performance was found. Employees with low or highlevels of job strain performed better on their jobs than employees with moderate levels ofstrain. This contrary view might be argued that some employees are motivated to performwhen there is a lot of pressure. However, stress in the best work environment may need tobe controlled since excessive pressure is known to result in negative effects for patients,nurses, and organizations.

Our research suggests that coping strategies adopted by KSA oncology nurseshave a partial mediating effect on job strain's negative influence on their workperformance. Oncology nurses who reported adoption of more effective coping strategiesare more likely to report a higher level of work performance. However, in this study,oncology nurses reported using both PFCSs and EFCSs when dealing with job strain. Thetypes of coping strategies most frequently used by the oncology nurse participants werepositive reappraisal, self-controlling, and escape-avoidance, while acceptingresponsibility was the least used. This finding is consistent with Umann et al. [12] study that investigated the impact of coping strategies on the intensity of stress, among Brazilian hemato-oncology nurses. The mediation model developed in this study opensup a new direction for research into developing holistic perspectives on questions aboutrecruitment, retention, and wellbeing at work within oncology care settings that should beof interest to academic researchers and practitioners.The results of this study also suggest that increased job strain levels amongoncology nurses were significantly associated with increased utilization of EFCSs ($r = 0.21, p < 0.01$). Research provided evidence that EFCSs are frequently related toincreased stress, burnout, mental and physical health problems, and job dissatisfactionamong nurses [11,12]. In addition, the current studyresults reveal some interesting differential effects of coping strategies on workperformance. The use of PFCS such as positive reappraisal and self-controlling werepositively related to oncology nurses' performance($r = 0.36, p < 0.01$). In this respect,oncology nurses' coping strategies can also promote nurses' work performance. Thecurrent study found that KSA nurses in oncology care settings demonstrated moderatelevels of self-reported work performance ($M = 3.46$ out of 5), which is somewhat similarto that reported in previous research in the Saudi hospital nursing sector of workperformance at 3.52/5.00 [23]. Additionally, Al-Homayan et al. [6]found that the level of nurses' work performance among KSA MOH public hospitals wasalso moderate at 3.62, (range from 1.80 to 5.00), when focusing on job demands andresources, and social exchange.

Finally, results of the present study indicated a significantdifference in job strainand work performance means by type of hospital. Publicly funded hospitals had thehighest means score for job strain and the lowest mean score for work performance, which is consistent with a previous study among Ugandan nurses [10].Most services in the publicly funded hospitals are free of charge while high fees are paidfor services in the privately funded hospitals in the KSA [6]. Thisalternate payment structure could contribute to overcrowding and high job demands fornurses in the KSA publicly funded hospitals. Furthermore, the private sector covers only20% of the KSA health care services [24]. This meansthat nurses working in the KSA publicly funded hospitals are possibly working underhigher levels of job strain, especially in high populated areas, such as Jeddah and Makkahcities.

Study Limitations

Several factors could impact the interpretation of the study results. The study useda cross-sectional design, and accordingly cannot establish temporal or causalrelationships between job strain, coping strategies, and work performance. The use ofnon-probability sampling in two geographical sites potentially limits generalizability ofthis study to all oncology nurses in the KSA. Using measurement instruments that are notspecifically designed or tested for the Saudi context might have risks related to theirvalidity and reliability, due to both cultural variations and word meanings. However,despite these limitations, this study adds to our understanding of the utility of thesemeasurement instruments within the context of the KSA. Another limitation could berelated to non-response bias and the length of the survey (118 items), although there wasvery little missing data identified and it appeared to be missing at random. Commonmethod variance (CMV) could be another limitation as study data were collected throughself-report instruments at a single point in time using instruments with some elements ofoverlapping constructs across them. Given the demonstrated validity and

reliability of theinstruments utilized in this study, issues with CMV should be decreased to some extent.Based on these stated limitations, the study findings should be interpreted cautiously.

VII. Conclusions

This study provides evidence of a relationship between job strain, copingstrategies, and work performance in the KSA oncology nurses. The study sample wascomprised of internationally educated and Saudi nurses working in the KSA oncologycare settings within both publicly and privately funded hospitals. Based on the findings ofthis study, there is further support for the use of Karasek's Demand-Control Model andLazarus's Transactional Model of Stress and Coping to study the impact of job strain andcoping strategies on work performance. The study was able to demonstrate that theworkplace environment of oncology nurses creates different levels of job strain andadoption of coping strategies. Based on the model fit for this study, job strain and copingstrategies have a direct effect on the performance of oncology nurses. Therefore, themodel can be beneficial in understanding how coping strategies influence levels of jobstrain in the work environment and work performance of oncology nurses. Improvingwork environments of oncology nurses through development programs and policies tosupport positive coping with job strain can assist nurse management in retention ofnurses, and in improved quality of care delivered to their patients in the KSA.

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Table 1. Demographic and Work Characteristic of Oncology Nurses

Variable		N	Number of Participants %
Gender	Female	212	88.0
	Male	29	12.0
Age	25or less	23	9.5
	26-35	152	63.1
	36-45	47	19.5
	46-55	15	6.2
	56 or more	4	1.7
Country of Origin	Philippines	92	38.2
	India	77	32.0
	Saudi Arabia	24	10.0
	Lebanon	12	5.0
	Jordan	9	3.7
	Other*	27	11.2
Nursing Education	Bachelors of Nursing	163	67.6
	Nursing Diploma	74	30.7
	Master Degree in Nursing	4	1.7
Advanced Preparation	No	105	43.6	**in Oncology Nursing**
	Yes	136	56.4
	In-service Training in Hospital	63	46.3
	Certified Courses in Oncology Nursing	60	44.1
	Oncology Nursing Diploma	9	6.6
	Graduate Degree in Oncology Nursing	4	2.9
Oncology Unit	Medical Oncology	55	22.8
	Surgical Oncology	43	17.8
	Pediatric Oncology	48	19.9
	Hematology Oncology and PMT	38	15.8
	Other**	57	23.7
Type of Hospital	Public	196	81.3
	Private	45	18.7

	M	SD			
Age	32.46	7.77	Years in Nurse Experience	10.04	7.06
Years Oncology Nurse Experience	5.41	3.55			
Years in Oncology Nurses in the KSA	4.32	3.42			
Years in Current Unit	3.79	0.90	Years in Living		
in the KSA	5.88	5.96			

Notes: N=421, Bone Marrow Transportation (BMT); * USA, Canada, South Africa, Egypt, Pakistan; **Chemotherapy area, Palliative & Radiation, Oncology clinic

Table 2. Range of Possible Scores, Mean Scores, Standard Deviations (SD) and Cronbach's Alpha Coefficients for Study Scales and Subscales

Scale	Sub-scale	# of Items	Range of Possible Scores	Range of Actual Scores	Mean	SD	Cronbach Alpha
JCQ	Psychological job demands	5	12–48	12-42	25.99	4.10	.65
	Decision latitude	9	24–96	44-96	70.15	8.63	.66
JS	Mean psychological job demands- Mean decision latitude	------	0-3	-4.1-0.2.5	-0.70	0.55	------
RWCQ	Overall Scale	50	0-150	16-150	86.35	20.26	.91
	Problem-focused coping strategies (PFCSs)	24	0-72	11-72	43.89	11.22	.88
	Emotion-focused coping strategies(EFCSs)	26	0-78	5-78	42.46	10.88	.83
6-DSNP	Overall Scale	42	42-168	84-168	145.4	20.31	.97
	Interpersonal relations/Communication	12	12-48	24-48	42.41	5.56	.90
	Teaching/Collaboration	11	11-44	14-44	36.43	6.77	.92
	Planning/Evaluation	7	7-28	7-28	24.83	3.76	.89
	Critical care Leadership	7	7-28	14-28	24.65	3.31	.82
		5	5-20	5-20	16.82	3.19	.86

Note: Job Content Questionnaire (JCQ), Job Strain (JS), Revised Ways of Coping Questionnaire (RWCQ), Six-Dimension Scale of Nursing Performance (6-DSNP)

Table 3. Mean Scores for Study Variables by Work Characteristics

Variable	Work Characteristic	M	SD	T/F-Value/p value
Job Strain	Advanced Preparation			t (227.9) = 2.092, p = .038
	No (n=105)	-0.62	0.54	
	Yes (n=136)	-0.77	0.56	
	Type of Oncology Units			F (4) = .537, p = .709
	Medical (n=55)	-0.64	0.59	
	Surgical (n=43)	-0.68	0.72	
	Pediatric (n=48)	-0.77	0.48	
	Hematology & BMT (n=38)	-0.77	0.51	
	Other (n=57)	-0.69	0.46	
	Type of Hospital			t (96) = 2.086, p = .040
	Public (n=196)	-0.58	0.39	
	Private (n=45)	-0.73	0.58	
CSs (RWCQ)	Advanced Preparation			t (239) = -1.21, p = .229
	No (n=105)	84.56	18.99	
	Yes (n=136)	87.74	21.15	
	Type of Oncology Units			F (4) = .691, p = .599
	Medical (n=55)	86.13	19.25	
	Surgical (n=43)	83.44	20.78	
	Pediatric (n=48)	90.13	21.93	
	Hematology & BMT (n=38)	84.84	19.46	
	Other (n=57)	88.59	20.10	
	Type of Hospital			t (90.4) = -.3.85, p =.002
	Public (n=196)	78.07	14.64	
	Private (n=45)	88.26	20.92	
WP (6-DSNP)	Advanced Preparation			t (208) = -2.79, p = .006
	No (n=105)	3.36	0.51	
	Yes (n=136)	3.53	0.45	
	Type of Oncology Units			F (4) = 3.78, p = .005
	Medical (n=55)	3.54	0.43	
	Surgical (n=43)	3.29	0.59	
	Pediatric (n=48)	3.49	0.49	
	Hematology & BMT (n=38)	3.63	0.29	
	Other (n=57)	3.35	0.48	
	Type of Hospital			t (52.5) = -.6.82, p =.000
	Public (n=196)	2.95	0.58	
	Private (n=45)	3.57	0.37	

Notes: Bone Marrow Transportation (BMT), Work Performance (WP), Coping Strategies (CSs) Other(Palliative & Radiation, Chemotherapy Area, Oncology Clinics)

Table 4. Model Fit Summary

| Fit Indices	Values	Interpretation
Chi-square/Degrees of Freedom ($\chi2/df$)	3.37	reasonable fit
Goodness of fit index (GFI)	0.95	good fit
Adjusted goodness of fit index (AGFI)	0.88	acceptable fit
Comparative fix index (CFI)	0.97	good fit
Incremental fit index (IFI)	0.97	good fit
Root mean square error of approximation (RMSEA)	0.10	poor fit

Note: Model variables are job strain, coping strategies, and work performance

Table 5. Construct Model

Structural Paths	Standardized	SE	CR	P	Coefficient
Job Strain ⟶ Coping Strategies	-0.287		1.251	-4.641	0.000
Job Strain ⟶ Work Performance	-0.220		0.001	-3.837	0.000
Coping Strategies ⟶ Work performance	0.305		0.002	4.861	0.000

Variables			Indirect Effect			Total Effect		
	b	SE	P	b	SE	P		
Job Strain ⟶ Coping Strategies ⟶ Work Performance	-0.09	0.24	0.001	-0.31	0.041	0.001		

Note: Standard Error (SE), Critical Ratio (CR), StandardizedCoefficient (b)
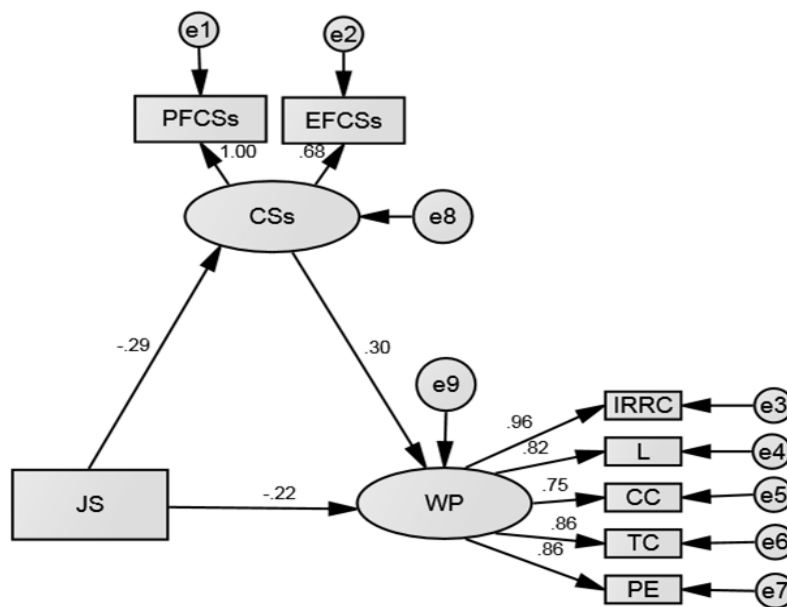
Note: Job strain (JS), coping strategies (CSs), Problem-focused (PFCSs), Emotion-focused (EFCSs), Work performance (WP), Interpersonal relations/Communication(IRRC), Leadership (L), Critical care (CC), Teaching/Collaboration (TC),
Planning/Evaluation (PE)

Figure 1. Results of Job Strain, Coping Strategies, and Work Performance Model

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