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THE MEDIATING ROLE OF JOB SATISFACTION IN THE RELATIONSHIP BETWEEN WORKING HOURS AND THE PRODUCTIVITY OF NURSES IN JAZAN HOSPITALS

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ABSTRACT

This study examines the mediating role of job satisfaction in the relationship between working hours and productivity among nurses at Jazan hospitals. Globally, the nursing profession is challenged with various factors, including high workloads in an environment of long hours and potential burnout, leading to dissatisfaction among male and female nurses in Saudi Arabia. Nurse productivity is essential for both patient outcomes and healthcare efficiency. This study compiles these findings, supported by a quantitative, descriptive, cross-sectional study conducted in four Jazan hospitals reporting the severe negative effects of overlong working hours on job satisfaction and nurse productivity. Importantly, job satisfaction is found to be an important value mediator (that longer working hours decrease job satisfaction, which in turn lowers productivity). This study underscores an important prompting to the healthcare industry to establish policies that support nurse job satisfaction and enhance nurse productivity, which is key in high-stress healthcare environments for high-quality patient outcomes. Theoretical framework Herzberg's Two-Factor Theory, Job Demand-Resource (JD-R) Model, and Person-Environment (P-E) Fit Theory.

KEYWORDS: Working Hours, Nurse Productivity, Job satisfaction, Saudi Arabia, Nurses.

1. INTRODUCTION

Nurses are the backbone of every functional and effective health system in that they are the primary caregivers, patient advocates, and educators. Their professional commitment and competence impact patient outcomes from recovery rates to overall satisfaction with health care services [1]. High-quality patient care in all healthcare settings is therefore underpinned by a strong and productive nursing workforce.

Yet, the nursing workforce across the world currently faces mounting challenges. Many nations face a critical understaffing of qualified nurses, with estimates indicating these deficits will grow substantially soon [2]. The demand for health professionals is often compounded by working long hours and heavy workloads [3]. These pressures often lead to professional burnout, job dissatisfaction, and a poor work-life balance, which can negatively impact nurse productivity [4]. Nurse productivity is a multilayer construct, focusing on the volume of tasks or time spent with patients, but more so on the quality of care that translates into efficient ways.

It has direct repercussions on patient safety and health service efficiency, as well as the financial sustainability of healthcare institutions. Research has firmly established that a sound nursing workforce will lead to decreased costs, greater patient satisfaction, and better patient outcomes. On the other hand, poor nurse productivity is generally associated with increased healthcare costs owing to higher rates of medical errors and complications, lower patient satisfaction scores, and a poorer quality of care [1].

Nurse productivity is multidimensional in nature, and more disabilities exist for nurses, which necessitates comprehensive research to obtain insight into the factors influencing it. This research is focused on examining the mediation role of job satisfaction in working hours and productivity of nurses in Jazan hospitals. Specifically, this is relevant pertaining to Saudi Arabia in the Jazan region, as the healthcare systems are always exploring ways to improve the delivery of care while promoting the well-being of nurses. It provides an important conduit for healthcare administrators and policymakers to better understand nursing practice and patient care outcomes through understanding the complex relationship between working hours, job satisfaction, and nurse productivity.

2. LITERATURE REVIEW

2.1. Working Hours and Nurse Productivity

Long hours are a serious issue within nursing; frequent implications are a decrease in productivity, as well as a negative impact on nurse health and wellbeing [3]. The study confirmed that working hours have a significant negative relationship with the productivity of nurses, which is accountable for physical and mental fatigue [5]. The Job Demand = Resource (JD-R) framework suggests that stress and burnout can arise from the high job demand, such as long hours [6].

Nurses need to be satisfied in their job for them to remain, so job satisfaction is vital [7]. In Saudi Arabia, studies vary regarding nurses' satisfaction with working hours; some were satisfied [8], while in Jazan, many were not [9]. To this end, the Herzberg Two-Factor Theory identifies hygiene factors that prevent dissatisfaction and motivators linked to satisfaction [11]. Studies have reliably demonstrated an association between job satisfaction and nurse productivity, leading to high patient care offered by nurses [12]. The study showed that higher job satisfaction improves productivity [5] and satisfied nurses are more involved [13], which supports this. The Person-Environment (P-E) Fit Theory proposes that satisfaction and performance are achieved through needs being aligned with the work environment [14].

2.2. The Mediating Role of Job Satisfaction

The mediation effect of job satisfaction between extended working hours and productivity is also substantial, showing that longer working time decreases employees' job satisfaction, which in turn has a negative effect on productivity [5]. This is consistent with the literature, showcasing job satisfaction as a mediating factor based on the work environment and stress background [15], explaining how dissatisfaction achieved after working for extended hours elates burnout that attracts deprecating productivity [16].

A study stated that nurse performance and job satisfaction are affected by the building of a conducive work environment [17], whereby satisfied nurses are more efficient [18] and productive [19]. In addition, leadership styles affect satisfaction and productivity at work [20]. Job satisfaction serves as a mediator of both working hours and productivity within hospitals via perceptions about the work environment [21-22].

This study suggests the need for better management, supportive environments, and

reasonable working hours to improve nurses' productivity under pressure in such settings as Jazan hospitals.

3. METHODOLOGY

3.1. Research Design

A quantitative, descriptive, cross-sectional design was used to observe relationships at a specific time.

3.2. Population and Sample

The study targeted nurses in selected Jazan hospitals (King Fahad Central Hospital, Samtah General Hospital, Ahad Al-Masarah Hospital, and Altwawl General Hospital). These hospitals were selected because of their diverse patient populations. Eligibility required active nursing practice within these hospitals. Stratified random sampling of 384 nurses was utilized to ensure proportional representation of nurses from the selected hospitals. A stratified random sampling technique was used to ensure proportional representation from each hospital. Each hospital was treated as a separate stratum, and the number of nurses selected from each hospital was based on its proportion of the total nursing workforce. This approach helped reduce sampling bias and ensured that nurses from both large and smaller hospitals were adequately represented in the study.

3.3. Eligibility Criteria

Eligible participants were registered nurses who were currently employed in one of the selected hospitals, had direct clinical nursing responsibilities, and had worked in their current hospital for at least six months. Nurses who were on extended leave, nursing interns, administrative staff, and nurses not involved in direct patient care were excluded from the study. These criteria ensured that participants had sufficient experience with hospital working hours, job satisfaction, and productivity-related conditions

3.4. Study Instruments

The questionnaire consisted of four sections: demographic data, working hours, nurses' productivity, and job satisfaction. The instruments were selected based on their relevance to the study variables and their established use in previous nursing and workforce studies. Nurses' productivity was measured using the Clinical Nurses' Productivity Scale developed by Nayeri *et al.* [27], while job satisfaction was measured using the Job Satisfaction Survey developed by Spector [28]. The

working hours section was adapted from previous literature and modified to fit the nursing context in Jazan hospitals.

To ensure content validity, the questionnaire was reviewed by experts in nursing research and healthcare management. Their feedback was used to improve the clarity, relevance, and suitability of the items before data collection.

3.5. Ethical Considerations

Ethical approval was obtained from Lincoln University College and Jazan Health Cluster before data collection. Participation was voluntary, and electronic informed consent was obtained from all participants. Confidentiality and anonymity were maintained throughout the study. Participants were informed that they could withdraw from the study at any time without any consequences.

3.6. Data Analysis

A pilot study was conducted before the main data collection to assess the clarity, feasibility, and reliability of the questionnaire. The pilot participants were nurses with similar characteristics to the target sample but were not included in the final analysis. The feedback obtained from the pilot study helped refine the wording of some items and ensured that the questionnaire was easy to understand. Reliability was assessed using Cronbach's alpha, with values of 0.70 or above considered acceptable. The results confirmed that the instruments had acceptable internal consistency for use in the main study. Data analysis involved descriptive statistics, reliability, and SmartPLS for assessing measurement and structural models, and path analysis to test hypotheses, including mediating effects.

4. RESULTS

4.1. Demographic Characteristics of the Respondents

Most participants were aged 30–39 years (38.5%), followed by 20–29 years (29.4%). The majority were female (80.1%) and married (52.4%). Most nurses held a bachelor's degree (90.5%). Regarding work experience, 43.2% had worked in the hospital for 11 years or more, while 40.5% had worked in their current unit for 6–10 years. Most participants were employed in the medical ward (42.9%) and the surgical ward (36.1%). Most of the participants were affiliated with King Fahad Central Hospital (62.2%), followed by Samtah General Hospital (22.6%) (Table 1).

Table 1: Demographic Characteristics of the Respondents.

Variable	Frequency	Percentage	
Age	20-29	87	29.4%
	30-39	114	38.5%
	40-49	61	20.6%
	50 and above	34	11.5%
	Total	296	100%
Gender	Male	59	19.9%
	Female	237	80.1%
	Total	296	100%
Marital Status	Single	133	44.9%
	Married	155	52.4%
	Divorced	5	1.7%
	Widowed	3	1%
	Total	296	100%
Level of Education	Bachelor's degree	268	90.5%
	Master's degree	26	8.8%
	Doctorate's degree	2	7
	Total	296	100%
Years Worked in This Hospital	Less than 1 year	22	7.4%
	1 to 5 years	35	11.8%
	6 to 10 years	111	37.5%
	11 or more years	128	43.2%
	Total	296	100%
Years Worked in Current Unit/Work Area	Less than 1 year	19	6.4%
	1 to 5 years	43	14.5%
	6 to 10 years	120	40.5%
	11 or more years	114	38.5%
	Total	296	100%
Department Currently Working In	Intensive Care Unit (ICU)	3	1%
	Emergency Department (ED)	23	7.8%
	Medical Ward	127	42.9%
	Surgical Ward	107	36.1%
	Paediatric Ward	36	12.2%
	Maternity/Obstetrics	0	0%
	Outpatient Department (OPD)	0	0%
	Other: _____	0	0%
Total	296	100%	
Hospital Affiliation	Ahad Al-Masaraha Hospital	24	8.1%
	King Fahad Central Hospital	184	62.2%
	Samtah General Hospital	67	22.6%
	Altwuwl General Hospital	21	7.1%
	Total	296	100%

4.2. Direct Effects

The direct relationships between working hours, job satisfaction, and nurse productivity were analyzed, yielding the following results. As shown in Table 2, a significant negative relationship was observed between working hours and nurses' productivity ($\beta = -0.200$, $t = 3.489$, $p = 0.000$). This indicates that as working hours increase, the productivity of nurses tends to decrease, highlighting the detrimental impact of excessive work duration on performance. A strong negative

and significant effect was also found between working hours and job satisfaction ($\beta = -0.552$, $t = 13.732$, $p = 0.000$), suggesting that longer working hours substantially reduce nurses' job satisfaction. Conversely, a positive and significant relationship was observed between job satisfaction and nurses' productivity ($\beta = 0.310$, $t = 6.856$, $p = 0.000$). This finding indicates that higher job satisfaction significantly enhances nurses' productivity levels, underscoring the importance of contentment in driving performance.

Table 2: Direct Hypothesis Test Results.

Hypothesis	Original Sample (β)	Sample Mean (β)	Standard Deviation	T Statistics	P Values	Decision
Working Hours -> Nurses' Productivity	-0.200	-0.200	0.057	3.489	0.000	Accepted
Working Hours -> Job Satisfaction	-0.552	-0.553	0.040	13.732	0.000	Accepted
Job Satisfaction -> Nurses' Productivity	0.310	0.310	0.045	6.856	0.000	Accepted

4.3. Mediating Effect of Job Satisfaction (H6)

Table 3 showed that the mediation analysis specifically examined the indirect effect of working hours on nurses' productivity through job satisfaction. The central hypothesis of this study, H6, posited that job satisfaction significantly mediates the relationship between working hours and the productivity of nurses in Jazan hospitals. The mediation analysis confirmed this hypothesis, revealing a significant indirect effect of working hours on nurses' productivity through job

satisfaction ($\beta = -0.171$, $t = 6.231$, $p = 0.000$). This result indicates a clear pathway: excessive working hours lead to a reduction in job satisfaction among nurses, and this diminished satisfaction, in turn, contributes to lower productivity. The significant p-value ($p = 0.000$) strongly confirms that job satisfaction plays a crucial mediating role in this complex relationship. The decline in satisfaction can be attributed to factors such as fatigue, increased workload pressure, and reduced motivation stemming from prolonged working hours.

Table 3: Indirect Hypothesis Test Results.

Hypothesis	Original Sample (β)	Sample Mean (β)	Standard Deviation	T Statistics	P Values	Decision
Working Hours -> Job Satisfaction -> Nurses' Productivity	-0.171	-0.171	0.027	6.231	0.000	Accepted

4.4. Model Fit and Predictive Relevance

The overall model fit and predictive relevance were assessed using several metrics, including the coefficient of determination (R^2), effect size (f^2), and cross-validated redundancy (Q^2). The R^2 values indicated that Working Hours and relevant variables accounted for 30.4% of the variation in Job Satisfaction, 46.6% in Nurses' Productivity, and 31.9% in Work-Life Balance, demonstrating moderate to high predictive validity. The effect size

analysis further revealed that Working Hours had a significant impact on Job Satisfaction ($f^2 = 0.437$) and Work-Life Balance ($f^2 = 0.468$), with moderate impacts of Job Satisfaction ($f^2 = 0.125$) and Work-Life Balance ($f^2 = 0.142$) on Nurses' Productivity. All cross-validated redundancy (Q^2) values were positive, confirming the model's predictive relevance. The overall Goodness of Fit (GoF) for the model was 0.545, indicating adequate global PLS model validity.

Table 4: The Coefficient of Determination (R²).

Dependent Variable	R-square	R-square adjusted
Job Satisfaction	0.304	0.302
Nurses Productivity	0.466	0.461
Work-Life Balance	0.319	0.317

Table 5: Effect Size (f²)

Relationship	f-square
Job Satisfaction -> Nurses Productivity	0.125
Work-life Balance -> Nurses' Productivity	0.142
Working Hours -> Job Satisfaction	0.437
Working Hours -> Nurses' Productivity	0.040
Working Hours -> Work-life Balance	0.468

5. DISCUSSION

The study confirms the mediating role of job satisfaction as significant between working hours and nurse productivity in Jazan hospitals. The evidence for the detrimental effect of working hours on both job satisfaction and productivity is consistent with global literature, thereby providing reassurance for the external validity of these findings [3,5]. A Contrary linear association between working hours and productivity indicates that beyond a certain optimal point, the more work hours, the less productivity due to physical and mental fatigue leading to stress and declining cognitive functions, which are essential for safe nursing care [5]. This fits within the JD-R Model [6], which suggests that high job demands, such as prolonged working hours, can reduce performance when adequate resources and support are lacking.

Most importantly, the study confirmed job satisfaction as a substantial mediator, shedding light on mechanisms at play in nursing. Prolonged working hours reduce job satisfaction, and reduced satisfaction subsequently lowers productivity. This corresponds to Herzberg’s Two-Factor Theory, in which long working hours serve as hygienic factors leading to dissatisfaction [11]. Declined job satisfaction results in loss of motivation, engagement, and commitment towards work, which affects efforts and care standards [12, 13]. This is supported by the Person-Environment (P-E) Fit Theory, noted that incompatible hours and low well-being of nurse’s deterrent dissatisfaction and reduce performance [14].

Our findings from Jazan hospitals are consistent with other regional and even international studies, such as Alkubati et al. (2025), who found that satisfaction mediates the relationships between stress and task performance of Saudi critical care nurses [29]. Because there has been previous dissatisfaction amongst Jazan nurses regarding work-life balance [9], this indicates that interventions need to improve job satisfaction, not just a reduction in working hours. This demands a more holistic approach to counterbalance the adverse consequences of overly demanding work schedules, which check productivity through providing better resources, supportive leadership, and an equitable compensation system [15, 17, 20, 23].

The negative correlation between working hours and job satisfaction is significant, indicating that longer hours are a major cause of dissatisfaction, impacting morale, psychological well-being, and quality of life. This displeasure is revealed through a quantitative dip in productivity. The efficacy of working hour management to protect nurses' mental and emotional health is highly associated with their performance, which directly influences the quality of care provided [5]. Spending on rational working hours is spending on the effectiveness of the healthcare system itself.

6. CONCLUSION AND RECOMMENDATIONS

In Jazan hospitals, this study illustrated that job satisfaction is an important mediator between working hours and nurses' productivity. Longer working hours produced a downturn in both job

satisfaction and productivity, while low levels of job satisfaction translated into lower productivity. The results underline the need for workload management, flexible schedules, supportive supervision, and managerial practices and programs to enhance job satisfaction to ultimately improve nurse well-being and health system performance. It is also revealing that hospitals need to develop evidence-based staffing policies and a work-life balance policy accompanied by supportive workplace environment strategies. Such initiatives will help sustain the productivity of nurses in the workplace and ultimately provide quality care. Future longitudinal and comparative studies are warranted to better understand these associations across varying care settings.

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7. LIMITATIONS

This study has several limitations. The cross-sectional nature limits causal inference of the link between variables. Response bias and common method variance related to self-report questionnaires may also lead to response bias. Moreover, the study was performed in a few hospitals in the Jazan region only, which may be less generalizable to other healthcare settings across Saudi Arabia. Subsequent studies should implement longitudinal designs and examine more organizational variables such as burnout, leadership style, work engagement, and organizational commitment.

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