# Nurses' Workload and Quality of Life in General Hospitals: The Mediating Role of Resilience

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**ABSTRACT**

**Introduction:** An increased nurse's workload might break the balance between work and life, reducing nurses' quality of life. This condition can lead to physical, mental, and emotional exhaustion. Nurses with low resilience may develop psychological issues or mental illness. This study aims to determine the relationship between workload, resilience, and quality of life of nurses.

**Methods:** A cross-sectional study with proportionate stratified random sampling was implemented in nurses working at type B hospitals in West Nusa Tenggara, Indonesia. A total of 265 nurses were enrolled in this study during September-October 2022. The National Aeronautics and Space Administration Task Load Index (NASA-TLX), The Russel & Russel questionnaire, and the WHOQOL-Brief quality of life were used on this research instrument. The Partial Least Square-Structural Equation Model (PLS-SEM) was used to investigate the effect of mediating resilience on the link between workload and quality of life in nurses.

**Results:** The study's findings indicate that workload (X) and resilience (M) affect quality of life (Y) (53.1%). Nurses' workload affects the quality of life via resilience (Path coefficient = -0.049, p = 0.041). It can be interpreted that nurses' workload has a negative and substantial link with the quality of life due to resilience.

**Conclusion:** This study concludes that resilience mediates the relationship between nurses' workload and quality of life.

**Keywords:** Nurses, Quality of life, Resilience, Workload

## Introduction

Nurses make up most of the service workforce in most healthcare facilities. Despite their well-known demanding schedules, nurses work hard to preserve a high quality of life (QOL) in their personal and professional lives. Nurses must deal with various issues at work, including personnel shortages, lengthy work hours, a heavy patient load, and adhering to workplace management standards. This, in turn, might affect the quality of care, jeopardizing the quality of patient care; hence it is critical to analyze nurses' QOL.[1,2]

Nurses who work in hospitals must deal with various challenges, including long working hours. As a result, nurses are unable to rest and are overworked. A heavy workload can lead to decreased nurse performance and poor communication between patients and nurses, which can impact the patient's condition and the quality of nursing services in the future. Furthermore, a heavy workload might break the balance between work and life, reducing nurses' quality of life. Again, increased nurses' workload can lead to physical, mental, and emotional exhaustion.[3,4,5] Nurses with low resilience may develop psychological issues or mental illness.[6]

Resilience is an individual's endeavor to be able to rise when faced with difficulties, such as emotional exhaustion and job dissatisfaction.

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Nurses' resilience might improve when they can view stress as a challenge rather than a threat or distraction. Individuals can acquire robust personalities by adaption and experiences passed down from nurses. As a result, it is essential to have a resilient nurse to obtain life satisfaction, mental health, and enjoyment in the quality of life. Those who possess a strong sense of resilience have the remarkable ability to adapt seamlessly to difficult situations. When confronted with stress, they tend to achieve exceptional results and experience an improved quality of life.[7,8]

Based on preliminary study results, nurses have a heavy workload, which can lead to them considering leaving their jobs or quitting their profession altogether. It's also not unusual for nurses to suddenly resign or express their desire to leave their hospital job because of the stress and pressure of their workload. In this situation, the role of resilience also affects the quality of life for nurses in dealing with difficult situations. By increasing the resilience of nurses, it is hoped that they will be able to reduce the negative impacts that can affect their quality of life.[9,10,11]

Many past studies have discussed nurse stress, professional quality, and nursing workload. There are, however, only a few studies that investigate nurses' quality of life and its relationship to workload and resilience. This study, therefore, aims to determine the relationship between workload, resilience, and quality of life. This research hypothesis includes H1: Workload (X) is related to nurses' quality of life (Y); H2: Workload (X) is related to nurse resilience (M); and H3: Resilience (M) is related to nurses' quality of life (Y).

## Methods

A cross-sectional study with proportionate stratified random sampling was implemented in nurses working at type B hospitals in West Nusa Tenggara, Indonesia from September to November 2022. Based on the outcomes of the calculations, the researcher gathered respondents from four hospitals chosen from each unit with a quantifiable percentage representing the entire population to ensure that all hospitals are represented. The sampling technique used a lottery to ensure fairness for all respondents who were chosen as study samples. In this study, confounding factors are reduced by establishing inclusion criteria, utilizing random sampling techniques, and standardized instruments. The inclusion criteria of the respondents included: 1) Nurses who are willing to sign the informed consent form; and 2) Nurses with at least one year of experience. Exclusion criteria were: 1) Nurses having a high school education in Health Nursing School; 2) Nurses in structural positions; and 3) Nurses on leave, illness, permission, or study assignments throughout the research. A total of 265 nurses were enrolled in this study. This study used the Slovin formula to calculate sample size and achieved a 5% accuracy level with a population size of 784, making this study reliable.

$$n = \frac{N}{1 + N\,(e)^2}$$

$$n = \frac{N}{1 + N\,(e)^2}$$

$$n = \frac{784}{1 + 784.(5\%)^2}$$

$$n = \frac{784}{2,96}$$

$$n = 264.8 \text{ respondents} \sim 265 \text{ respondents}$$

Note:

n = Sample

N = Population

e = Error tolerance (level) = 0.05 (5%)

The demographic data questionnaire collects personal information from respondents, including name, age, gender, education, marital status, employment status, work location, and length of employment. The National Aeronautics and Space Administration Task Load Index (NASA-TLX) questionnaire was used to assess nurses' workload because it is a frequently used tool with subjective and multidimensional weighting. The NASA-TLX rating comprises six subjective subscales, each represented on a separate page and as a separate questionnaire section. These six subscales are mental load (mental demand = MD), physical demand (PD), time requirement (temporal demand = TD), the burden of performance (performance = OP), operating expenses (effort = EF), and frustration (FR). Rating and weighting are the two fundamental components of NASA-TLX.[12] The Russel & Russel (2007) questionnaire, known as The Resiliency Quotient (RQ), was used to assess resilience.[13] The WHOQOL-Brief quality of life, was used for measurement of quality of life.

The quality-of-life questionnaire consists of 26 statements divided into four categories: physical health, psychology (psychological state), social interactions, and environment (environment state).[13]

Each respondent received detailed information regarding the study's purpose and the questionnaire's content. This research has obtained ethical approval from the Ethics Committee of the Faculty of Health Sciences, Universitas Brawijaya (No. 4680/UN10.F17.11.21/TA.00.04/2022). To calculate standard deviation values and variable correlations, SPSS 22.0 was used. In this study, Partial Least Squares – Structural Equation Modeling (PLS-SEM) analysis was used to investigate the direct and indirect relationship between variables. The theoretical framework of this study was created by determining variables related to the quality of life, such as nurses' workload and resilience, as mediating variables, as shown in Figure 1.
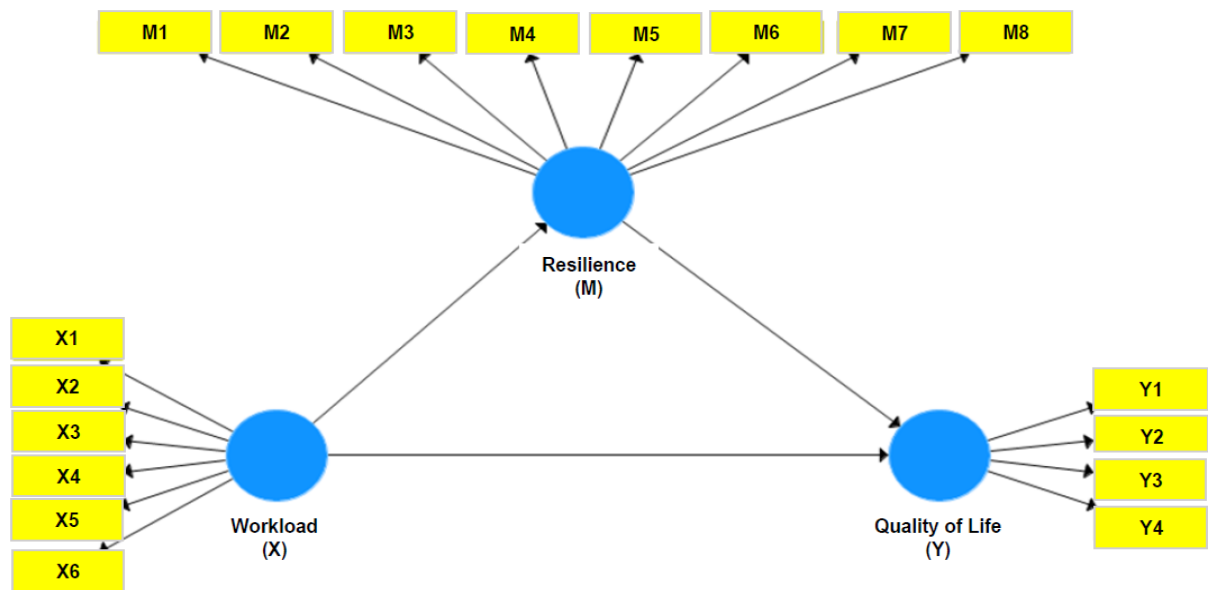


**Figure 1:** Theoretical Framework of The Study

## Results

This study comprised 265 nurses from four West Nusa Tenggara, Indonesia hospitals. The characteristics of respondents are detailed in Table 1. Most nurses are females (68,7%), aged between 21 and 40 years (93.2%), have a bachelor's degree (59.2%), are married (74.7%), contract employees (75.1%), and have worked in the hospital between 1-5 years (52.5%).

Table 2 displays the mean score for each variable and its dimensions. The mean score in the workload dimension was 71.8 (SD = 10.132), the highest average score in the effort dimension was 72.77 (SD = 13.705), and the lowest score in the emotional burden dimension was 68.43 (SD = 17.514). In resilience with a mean score of 147.38 (SD = 15.506), self-assurance obtained the highest mean score of 18.87 (SD = 2.488) and personal goals (18.87 (SD = 2.522) and the lowest score on the organized dimension (17.94 (SD = 2.436). Regarding the quality of life, social relationships obtained the highest score of 71.46 (SD = 14.393). In contrast, the physical health dimension received the lowest score of 59.89 (SD = 9.086).

**Table 1:** Characteristics of respondents (n=265)

| Categories | N (%) |
|---|---|
| **Gender** | |
| Male | 83 (31.3) |
| Female | 182 (68.7) |
| **Age** | |
| 21 – 30 years old | 128 (48.3) |
| 31 – 40 years old | 119 (44.9) |
| ≥ 41years old | 18 (6.8) |
| **Educational Level** | |
| Diploma of Nursing | 107 (40.4) |
| Bachelor of Nursing | 157 (59.2) |
| Master of Nursing | 1 (0.4) |
| **Marital Status** | |
| Married | 198 (74.7) |
| Not married | 65 (24.5) |
| Divorce | 2 (0.8) |
| **Job-status** | |
| Government employee | 66 (24.9) |
| Contract employee | 199 (75.1) |
| **Length of Employment** | |
| 1 - 5 years | 139 (52.5) |
| 6 - 10 years | 67 (25.3) |
| ≥ 11 years | 59 (22.2) |

**Table 2:** Distribution of mean values (±standard deviation) of variables (n=265)

| Variables | Min | Max | Mean | Std. Deviation (SD) |
|---|---|---|---|---|
| Workload (X) | 42 | 89 | 71.28 | 10.132 |
| Mental demand (X1) | 40 | 95 | 70.60 | 14.335 |
| Physical demand (X2) | 50 | 90 | 71.70 | 13.241 |
| Temporal demand (X3) | 20 | 90 | 70.43 | 14.011 |
| Performance (X4) | 30 | 90 | 72.66 | 13.547 |
| Effort (X5) | 30 | 90 | 72.77 | 13.705 |
| Emotional burden (X6) | 20 | 90 | 68.43 | 17.514 |
| Resilience (M) | 96 | 187 | 147.38 | 15.506 |
| Self-assurance (M1) | 8 | 24 | 18.87 | 2.488 |
| Personal vision (M2) | 8 | 24 | 18.87 | 2.522 |
| Flexible and adaptable (M3) | 11 | 24 | 18.61 | 2.441 |
| Organized (M4) | 10 | 23 | 17.94 | 2.436 |
| Problem solver (M5) | 8 | 24 | 18.66 | 2.530 |
| Interpersonal competence (M6) | 10 | 24 | 18.05 | 2.612 |
| Socially connected (M7) | 8 | 24 | 18.15 | 2.277 |
| Proactive (M8) | 11 | 24 | 18.23 | 2.472 |
| Quality of life (Y) | 5 | 83 | 64.58 | 9.523 |
| Physical health (Y1) | 38 | 81 | 59.89 | 9.086 |
| Psychological health (Y2) | 31 | 81 | 63.86 | 10.376 |
| Social relationship (Y3) | 25 | 100 | 71.46 | 14.393 |
| Environment (Y4) | 44 | 88 | 63.61 | 11.872 |

This study used SmartPLS 3.0 to measure the relationship between variables, which revealed the findings of external loading for the measurement model, path coefficient, and R2 value.

Figure 2 shows the initial estimation of the PLS-SEM path analysis model. Indicators with the highest external loading value are environment and problem solver (0.883 and 0.849, respectively). Then it was followed by personal vision, self-assurance, and proactive (0.833, 0.811, and 0.804).

Because all indicators have an outer loading value greater than 0.6, it can be concluded that all indicators have convergent validity and can further evaluate the measurement model.

Table 3 displays the results of reflected measurement models with Cronbach's alpha greater than 0.6, composite reliability greater than 0.7, and all AVE values greater than 0.5. In general, the constructions demonstrate the reliability and convergent validity of the measurements and the interaction between constructs
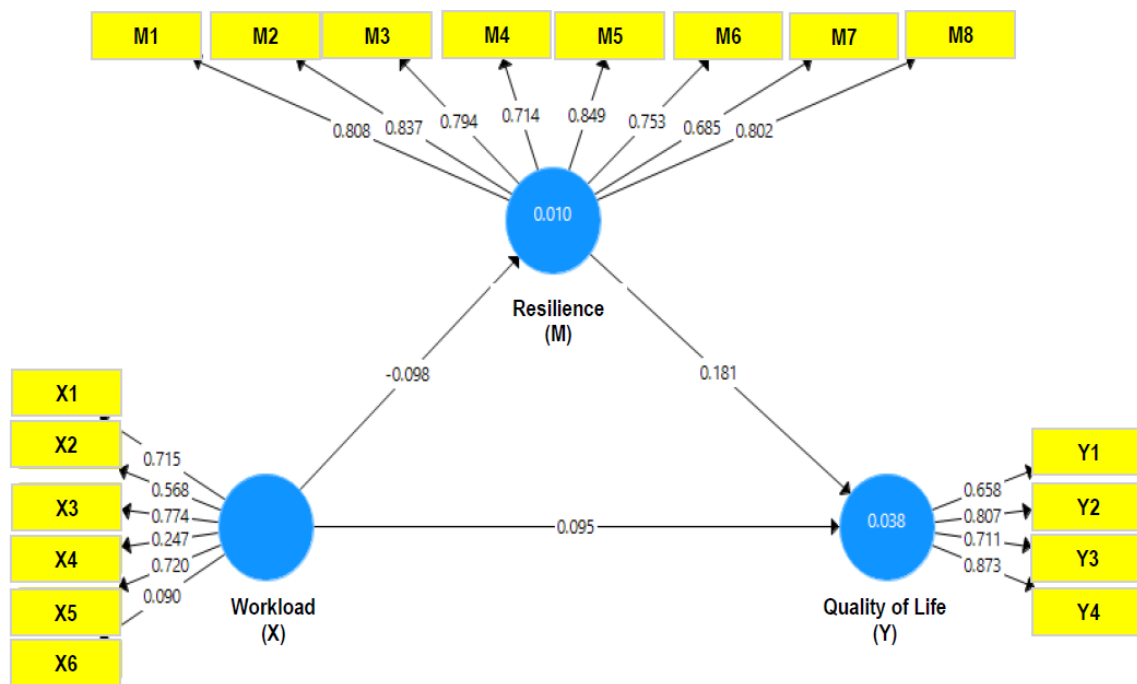


**Figure 2:** Initial results of PLS-SEM path model

**Table 3**: Reflective measurement model results

| Constructs | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|---|---|---|---|
| Workload | 0.761 | 0.833 | 0.555 |
| Resilience | 0.910 | 0.926 | 0.612 |
| Quality of life | 0.784 | 0.849 | 0.588 |

Figure 3 shows that the coefficient value of the impact of workload (X) on quality of life (Y) is -0.173, indicating that workload (X) had a negative effect on quality of life (Y). It signifies that the higher the workload (X) number, the lower the resilience (M). A unit increase in workload (X) reduces resilience (M) by 17.3%. Based on calculations using bootstrap or resampling, the estimated coefficient test of workload (X) on

resilience (M) is -0.186 with a t-count value of 1.730 (p-value = 0.024). It indicated a statistically significant direct effect of workload (X) on quality of life (Y).

Additionally, the coefficient value of workload (X) on resilience (M) was -0.160, indicating that workload (X) had a negative effect on resilience (M). This suggested that the higher the workload

(X) value, the lower the resilience (M). An increase in workload (X) diminishes resilience (M) by 16%. The estimated coefficient test workload (X) on resilience (M) bootstrap results was -0.173 with a t-count value of 1.538 (p-value = 0.011). It indicated a statistically significant or significant direct effect of workload (X) on resilience (M). The coefficient value of resilience (M) on quality of life (Y) was 0.178, indicating that there was a positive effect of resilience (M) on quality of life (Y). It also meant that the higher the value of resilience (M), the higher the value of quality of life (Y). An increase in resilience (M) boosts the quality of life (Y) by 17.8%. The estimated coefficient test of resilience (M) on quality of life (Y) bootstrap findings is 0.191 with a t-count value of 2.194 (p-value = 0.029). It concluded that there was a direct influence of resilience (M) on quality of life (Y).
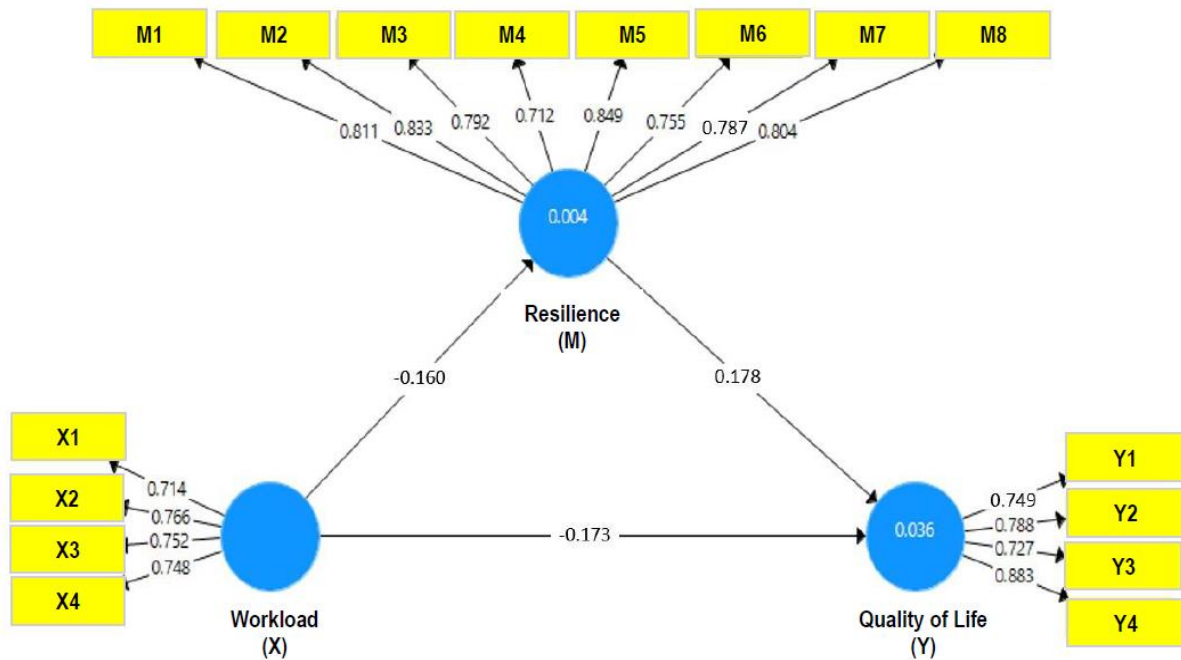


**Figure 3:** Final results of the PLS-SEM path model

Table 4 reveals a relationship between workload and resilience with a coefficient value of -0.160 (negative), p = 0.011. As a result, the association between workload and resilience was negative and significant. In addition, this study discovered a coefficient value of 0.178 (positive) with p = 0.029 between resilience and quality of life. As a result, the association between resilience and quality of life was both positive and essential. The original sample = -0.173 (positive) and p = 0.024 for the link between the workload on nurses and quality of life. As a result, the association between nurse workload and quality of life was negative and significant. Further, it revealed a relationship between the burden on nurses and quality of life through resilience, with a coefficient = -0.049 (negative) and p-value = 0.041. It could be argued that the workload had a negative and significant relationship to quality of life through resilience or that resilience mediated the relationship between workload and quality of life for nurses.

Table 5 illustrates the R-Square value for resilience of 0.563, indicating that workload contributed 56.3% to resilience. The R-Square value of quality of life was 0.637, which explained the 63.7% link between resilience and quality of life. This research model's findings have essential predictive components that are effectively designed, allowing them to be used as research models.

**Table 4:** Results of path model coefficients

| Construct | Coefficient | T Statistics (O/STEDEV) | p Value | Interpretation |
|---|---|---|---|---|
| Workload (X) → Resilience (M) | -0.160 | 1.538 | 0.011 | Sig. |
| Resilience (M) → Quality of life (Y) | 0.178 | 2.194 | 0.029 | Sig. |
| Workload (X) → Quality of life (Y) | -0.173 | 1.730 | 0.024 | Sig. |
| Workload (Endogenous variable) → Resilience (Mediator variable) → Quality of life (Exogenous variable) | -0.049 | 0.022 | 0.041 | Sig. |

**Table 5:** Explanation of variance

| Constructs | $R^2$ |
|---|---|
| Quality of life (Y) | 0.637 |
| Resilience (M) | 0.563 |

## Discussion

The results of the study revealed that most nurses were female, of productive age, had bachelor's degrees, were married, contract employees, and had worked in the hospital between 1-5 years. A previous study found that age, gender, marital status, status, and education influenced the incidence of psychological problems in female nurses.[14] However, other studies discovered that job characteristics such as length of service, monthly salary income, and night shift work were more closely related to psychological problems than factors such as age, marital status, and other demographic characteristics.[15] This study revealed that most hospital staff were contract nurses whom the hospital solely paid. These nurses can only become government servants and earn a higher salary after working long hours and passing the civil servant selection process. The study also found that the staff's highest rating was in the effort category. Effort refers to the physical and mental work required to achieve optimal nurse performance and is closely tied to their engagement with their tasks.[16]

Individuals' resilience is related to their ability to absorb, adapt, predict, and adjust their practices when confronted with external or internal dangers and weaknesses.[17] In terms of the resilience dimension, this study found that self-assurance has the highest mean score. Self-assurance is an absolute necessity for achieving success in every aspect of life. It is pivotal in our ability to overcome obstacles and bounce back from setbacks. With it, we may be able to take the necessary risks. The importance of self-assurance cannot be overstated, as it permeates all areas of our daily routines. According to this study, social relationships have the most significant impact on nurses' quality of life. Previous research also showed that social functioning had the highest value and that nurses' gender significantly influenced their quality of life (p<0.05).[18]

Nurses who work in hospitals confront various challenges, including long hours that leave nurses exhausted and unable to rest, doing multiple tasks in a single-day work schedule, and a heavy burden. High emotional stress, a severe workload, working overtime, and a lack of social connection can all contribute to nurses' bad quality of life. The number of complaints reduces nurses' quality of life in a variety of ways, including psychological elements. Nurses with bad quality of life report physical issues such as exhaustion, mental stress, irritation with coworkers or patients, and falling service standards for patients.[19]

A lack of resilience causes a person's psychological issues or mental disorders.[6] An excessive workload can have several consequences, including an increased chance of developing health problems or occupational diseases. A heavy workload can break the balance between work and life, resulting in a deterioration in the quality

of life. Excessive workload causes physical and mental weariness, which promotes emotional reactions such as dyspepsia, headaches, and irritation. Furthermore, an excessive workload can cause stress in nurses and impact nursing performance and services.[20,21] Effective workload management leads to a better work environment as it reduces fatigue levels. Work control is linked with decreased errors at work and reduced severity of burnout symptoms.[22]

In addition to this, health professionals can prevent burnout with the right support system and pastimes. Receiving support from family members can provide the moral, emotional, financial, and physical aid needed to maintain balance. Engaging in hobbies can also help boost self-confidence and self-esteem, contributing to a healthier and happier lifestyle.[23]

When working conditions are challenging, nurses must be resilient. Self-resilience and the ability to rise above issues confronting nurses are called resilience. Resilience is the ability to increase, adapt, and survive under challenging circumstances. Resilience is essential for nurses because this profession is subjected to a great deal of stress, such as critical patients, a shortage of medical personnel, and mental tiredness. Acknowledging the significant harm that work-related stress can have on physical and mental well-being and its potential to reduce productivity and cause economic instability is essential. Nevertheless, with resilience, one can triumph over challenging work demands and achieve tremendous success.[24] According to previous research findings, nurses with a high level of resilience are less vulnerable to stress and remain in excellent working conditions.[24] It also requires the ability to cope with and adapt to adversity, which is known as resilience. The previous study's findings also revealed that psychological resilience was associated with nurses' quality of life (r = 0.55, p 0.01).[25]

Nurses who possess resilience and have a good quality of life are less likely to experience burnout. Nursing managers can support the well-being of nursing professionals by implementing policies that enhance their quality of life and build their resilience.[26] Managers must prioritize employee resilience to effectively combat burnout, enhance job satisfaction, and retain high-performing staff. By providing vital resources, such as cognitive therapy, stress management techniques, and resilience training, a more robust work environment can be established.[27] This is a critical step towards ensuring organizational success and should not be overlooked.

The limitations of the research revealed in this study include the few references from prior studies that explicitly explore the quality of life of nurses and their relationship to workload and resilience because previous literature has only discussed the quality of work of nurses. The findings of this study focused on the influence of workload on the resilience and quality of life of nurses in particular. Furthermore, some nurses may be less honest in filling out the questionnaire, which undermines the quality of the data obtained. This study used a sufficient number of sample sizes, random sampling, and good validity; however, it may not apply to other research areas due to the influence of cultural variables, hospital organizational environment, and others. Questionnaire-based surveys may have limited advantages. Factors limiting the study's accuracy will be the nurse's incapacity to interpret and focus on the questions and react appropriately.

## Conclusions

This study found a link between nurses' workload, resilience, and quality of life. It is recommended that hospitals should prioritize workload management to improve their nurses' quality of life and resilience. The workload should be tailored to nurses' qualifications, length of service, work unit, patient characteristics, and resource allocation. Nursing management needs to prioritize the well-being of their nurses by implementing regular training and resilience-building programs. They should also ensure the workload does not harm nurses' health. This way, a healthier and more productive work environment can be established, which is essential for the organization's success.

## Acknowledgments

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