Journal of Infrastructure, Policy and Development 2024, 8(11), 8884.
https://doi.org/10.24294/jipd.v8i11.8884

Article

Exploring the impact of quality of life on happiness among female healthcare professionals: The moderating roles of family and education

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CITATION

Bokhari R, Nazneen A, Qazi S, Bhalla P. (2024). Exploring the impact of quality of life on happiness among female healthcare professionals: The moderating roles of family and education. Journal of Infrastructure, Policy and Development. 8(11): 8884. https://doi.org/10.24294/jipd.v8i11.8884

ARTICLE INFO

Received: 30 August 2024
Accepted: 27 September 2024
Available online: 9 October 2024

Abstract: Purpose: This study explores the impact of quality of life (QoL) on the happiness of female healthcare professionals, focusing on the moderating roles of family dynamics and education. **Method:** A descriptive and exploratory design was used with data from 503 female healthcare professionals. Various quantitative analyses, including regression and correlation, were conducted using SPSS and AMOS. **Findings:** The study found a positive relationship between QoL and happiness. Family dynamics and education significantly moderated this relationship, highlighting the influence of these factors on happiness levels. **Implications:** The research offers insights into the well-being of female healthcare professionals and calls for policies that support QoL through flexible work arrangements and wellness programs, considering diverse family structures and educational backgrounds. **Originality:** This study provides a focused analysis of the role of family and education in shaping the relationship between QoL and happiness for female healthcare professionals.

Keywords: quality of life (QoL); happiness; female healthcare professional's well-being; occupation; family dynamics; female healthcare professional

The pursuit of happiness remains a fundamental aspiration across human societies, transcending cultural, temporal, and individual boundaries (Kaur et al., 2023). Contemporary research increasingly explores the interplay between quality of life (QoL) and happiness, recognizing that these constructs are multifaceted and deeply intertwined (Ciziceno, 2022). QoL, encompassing physical capacity, psychological well-being, level of independence, social relationships, environment, and spirituality, provides a comprehensive framework for understanding the various dimensions that contribute to an individual's overall satisfaction and happiness (Nagina et al., 2024). For female healthcare professionals, particularly those balancing roles as working professionals and homemakers, the interaction between QoL and happiness is complex and influenced by numerous factors (Singh et al., 2023). This study aims to explore this interaction, focusing on how family dynamics and education moderate the relationship between QoL and happiness (Kaur and Singh, 2022). Happiness is further examined through the dual lenses of authentic happiness (AH) and fluctuating happiness (Tolberger et al., 2023).

Historically, female healthcare professionals' roles in society have undergone significant transformations, shifting from primarily domestic responsibilities to active participation in the workforce (Braunger and Walk, 2022). This evolution has introduced new dimensions to the QoL and happiness paradigm (Kaur et al., 2024a). Working female healthcare professionals often juggle multiple roles, balancing

professional responsibilities with familial duties, leading to both unique stressors and rewards (Bhalla et al., 2024). Understanding how these diverse roles impact happiness necessitates a nuanced exploration of various moderating factors, including family structure and educational background (Seibert et al., 2024).

Physical capacity, or the ability to perform daily activities and maintain good health, is fundamental to QoL (Figueira et al., 2021). For female healthcare professionals, physical capacity is influenced by factors such as access to healthcare, nutrition, exercise, and the demands of their household and professional tasks (Robinson et al., 2023). Physical well-being directly affects energy levels, mobility, and overall life satisfaction, thereby playing a crucial role in both AH and FH (Xu et al., 2023).

Psychological well-being encompasses emotional stability, stress management, and mental resilience (Zhi and Derakhshan, 2024). Female healthcare professionals often face unique psychological challenges due to societal expectations, work–life balance issues, and familial responsibilities (Masood and Barrech, 2023). High levels of psychological well-being contribute to AH, characterized by a deep and enduring sense of fulfillment, as well as FH, marked by temporary moments of joy and pleasure (Zhang and Xiao, 2024).

The level of independence, or the degree of autonomy and control over one's life, significantly impacts QoL. Independence in decision-making, financial stability, and the ability to pursue personal goals enhance both QoL and happiness. For female healthcare professionals, achieving a high level of independence often involves balancing career aspirations with family commitments. This dynamic varies widely between working female healthcare professionals and homemakers.

Social relationships and support networks are vital components of QoL. Positive interactions with family, friends, and colleagues provide emotional support and foster a sense of belonging and community (Alqsaireen et al., 2023). These relationships are integral to both AH and FH. For working female healthcare professionals, social relationships extend into professional networks, while homemakers may rely more heavily on family and community ties (Emami et al., 2023). The quality of these relationships can either enhance or detract from overall happiness.

The environment, including living conditions, safety, and access to resources, significantly impacts QoL (Nutakor et al., 2023). A conducive environment promotes well-being, while adverse conditions can hinder happiness. Female healthcare professionals' experiences of their environment can vary greatly depending on their roles and responsibilities, influencing their levels of satisfaction and happiness (Hu et al., 2023).

Spirituality, encompassing beliefs and practices that provide meaning, purpose, and comfort, contributes to an individual's QoL (Myers, 2023). For many female healthcare professionals, spirituality is a source of strength and resilience, enhancing both AH and FH by offering a framework for understanding life's challenges and cultivating inner peace.

Happiness itself is a multifaceted construct. AH refers to a deep, enduring sense of fulfillment and contentment derived from meaningful life experiences, personal growth, and alignment with one's values and purpose (Chang et al., 2024). In contrast, FH encompasses the temporary, often situational feelings of joy or pleasure influenced

by immediate circumstances and external events (Fahwa, 2023). These dual aspects of happiness provide a comprehensive understanding of how female healthcare professionals experience and perceive happiness in their daily lives.

The relationship between QoL and happiness among female healthcare professionals is further moderated by several key factors. Family dynamics significantly influence female healthcare professionals' QoL and happiness, with the type of family structure—whether nuclear or joint—playing a crucial role. In supportive family environments, emotional well-being is enhanced, stress is mitigated, and overall life satisfaction increases. However, familial conflicts, lack of support, or excessive caregiving responsibilities can negatively impact QoL and happiness. Female healthcare professionals often bear the brunt of child-rearing, elder care, and household management duties, which can affect their free time, personal pursuits, and overall sense of happiness. The specific nature of these impacts can vary between nuclear and joint family setups, each presenting its own unique challenges and benefits.

Education also influences the relationship between QoL and happiness (Guedes et al., 2023). Higher educational attainment often correlates with better employment opportunities, higher income, and improved social status, enhancing QoL and contributing to greater happiness (Nutakor et al., 2023). Educated female healthcare professionals might have better coping mechanisms, a broader perspective on life, and a stronger sense of agency (Grottis, 2024). However, the benefits of education are not uniform; they are mediated by cultural, economic, and social contexts that can either amplify or mitigate the advantages associated with higher education.

This research aims to investigate these dynamics by exploring the happiness levels of working female healthcare professionals and finding out how family and education moderate the impact of QoL on happiness. This research seeks to provide a comprehensive understanding of the factors at play. By examining the diverse experiences of female healthcare professionals across different family structures and educational backgrounds, this research aspires to contribute to the broader discourse on female healthcare professionals' well-being and happiness.

1. Review of literature

The intricate relationship between QoL and happiness has been a focal point of psychological and sociological research for decades. Numerous studies have examined how various dimensions of QoL, such as physical capacity, psychological well-being, level of independence, social relationships, environment, and spirituality, contribute to an individual's overall happiness. This review of literature aims to synthesize existing research between QoL and happiness among female healthcare professionals, with a particular focus on their experiences and the moderating roles of family dynamics and education.

QoL is a multifaceted construct that encompasses several key dimensions. Physical capacity, referring to an individual's health and ability to perform daily activities, is fundamental to QoL. Research indicates that good physical health significantly enhances life satisfaction and happiness (Nagina et al., 2024). Conversely, poor health can be a substantial detractor from QoL, leading to reduced

mobility, increased dependency, and lower overall happiness (Kaur et al., 2024b). For female healthcare professionals, the demands of both professional work and household responsibilities can impact physical health differently, necessitating a nuanced exploration of this dimension of QoL.

Psychological well-being is another critical aspect of QoL. It includes emotional stability, stress management, and mental resilience. Studies have shown that psychological well-being is a strong predictor of happiness (Nazneen et al., 2024). Female healthcare professionals often face unique psychological challenges due to societal expectations and the pressure to balance multiple roles. Research by Kaur (2019) highlights that female healthcare professionals report higher levels of stress compared to men, largely due to these balancing acts. This stress can impact their psychological well-being and, consequently, their happiness.

The level of independence, or autonomy, also plays a significant role in determining QoL. Independence in decision-making, financial stability, and the ability to pursue personal goals are crucial for life satisfaction (Goyal et al., 2023). For working female healthcare professionals, financial independence and career accomplishments can enhance QoL and happiness (Dodd et al., 2024). However, homemakers might experience a different kind of independence related to managing household affairs and raising children (Fatanah and Rasyidi, 2024). Both forms of independence are important but can influence happiness in distinct ways.

Social relationships and support networks are vital to QoL. Positive interactions with family, friends, and colleagues provide emotional support and contribute to a sense of belonging (Kaur and Madaan, 2023). For female healthcare professionals, the quality of these relationships can significantly impact their happiness. Working female healthcare professionals often benefit from professional networks that offer social support (Spates et al., 2024). A study found that strong social networks are associated with higher levels of happiness, highlighting the importance of social relationships in enhancing QoL.

The environment, including living conditions, safety, and access to resources, also significantly affects QoL. A conducive environment promotes well-being, while adverse conditions can hinder happiness. Female healthcare professionals' experiences of their environment can vary widely depending on their roles and responsibilities, influencing their levels of satisfaction and happiness (Cai et al., 2024). For instance, working female healthcare professionals might experience environmental stressors related to their workplace.

Spirituality, encompassing beliefs and practices that provide meaning and purpose, contributes significantly to QoL (Kaur et al., 2024c). For many female healthcare professionals, spirituality is a source of strength and resilience, enhancing both AH and FH. Research by Koburtay and Alghaiwi (2024) suggests that spiritual practices can offer emotional comfort and a sense of community, which are essential for psychological well-being and happiness.

Happiness itself is a complex and multifaceted construct. AH refers to a deep, enduring sense of fulfillment derived from meaningful life experiences and alignment with personal values. FH, meanwhile, involves temporary feelings of joy influenced by immediate circumstances (Esch, 2022). Both forms of happiness are essential for understanding how QoL impacts overall well-being.

Several moderating factors influence the relationship between QoL and happiness. Family dynamics, whether in nuclear or joint family setups, also play a crucial role. Supportive family environments enhance emotional well-being and life satisfaction, while familial conflicts and caregiving burdens can detract from happiness (Cheng and Ariyo, 2023). Education is another important factor, as higher educational attainment is often associated with better employment opportunities, higher income, and improved social status, all of which enhance QoL and happiness (Edgerton et al., 2011).

In conclusion, the relationship between QoL and happiness is multifaceted and influenced by various dimensions and moderating factors. For female healthcare professionals, understanding these dynamics is crucial for enhancing overall well-being. This review highlighted the importance of considering multiple aspects of QoL and their interaction with factors such as family dynamics and education in the pursuit of happiness. Further research is needed to explore these relationships in greater depth, particularly in different cultural and socioeconomic contexts.

Conceptual framework

The literature on QoL and happiness and its different determinants that were previously discussed served as the foundation for developing the conceptual model. QoL is shown as an endogenous variable in the model proposed by the current study. This model consists of six components, measured with six constructs: physical capacity (PC), psychological well-being (P), level of independence (LI), social relationships (SR), environment (E), and spirituality (S). Happiness is an exogenous variable measured with two constructs: authentic happiness (AH) and fluctuating happiness (FH; **Figure 1**).

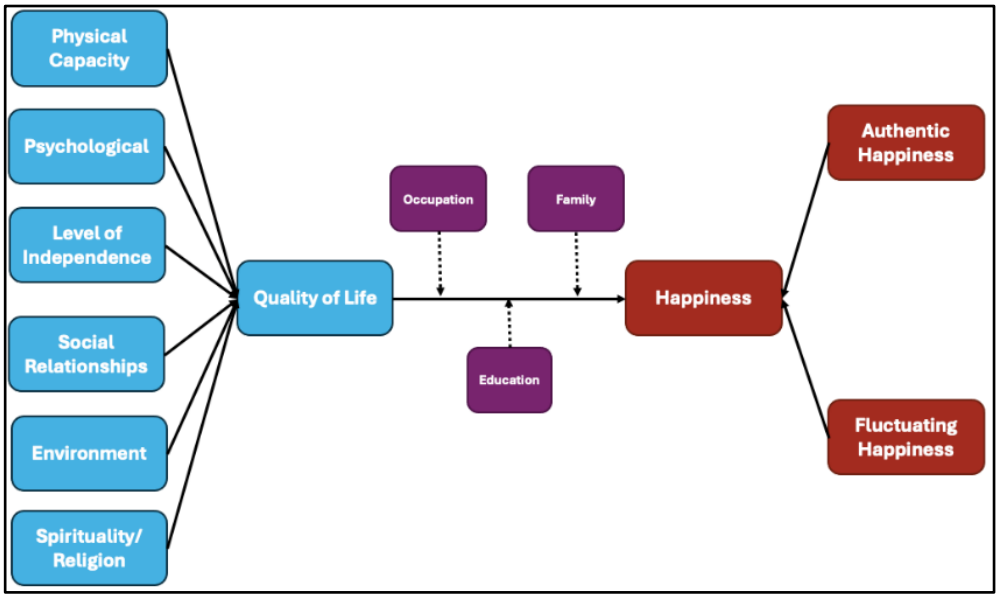

Figure 1. Proposed research model.

The proposed research framework is based on two constructs: QoL and happiness, i.e.,

$$H = f(\text{QoL})$$

where QoL means quality of life, and *H* means happiness. This implies that QoL is a function of happiness. In the above framework, two variables—family and education—are also investigated to check their moderating role in the relationship between QoL and happiness.

2. Research methodology

2.1. Research design

The present study is descriptive in nature, as it tried to identify the different variables of QoL and happiness. Thus, the research design was appropriate for the present study, as it was important to understand the dynamics of QoL and happiness. The present research is primary and exploratory. The responses were collected through structured questionnaires of female healthcare professionals working in various hospitals in different capacities and areas.

2.2. Data collection and tools

A total of 578 responses were received through questionnaires shared in person and electronically via Google Forms. However, some responses were incomplete or had missing data, making them unsuitable for the final data analysis. After eliminating incomplete responses, the number of acceptable responses dropped to 503. These 503 complete responses were used in this study for statistical analysis. Quantitative tools were applied: descriptive statistics, correlation analysis, and regression analysis using SPSS 23.0 and AMOS.

2.3. Objectives of the study

- To determine the impact of QoL on happiness among female healthcare professionals in India.
- To analyze the moderating role of education in the relationship between workplace spirituality and thriving at work.
- To analyze the moderating role of the family in the relationship between workplace spirituality and thriving at work.

3. Results and discussions

Following data collection from respondents, it was input into SPSS for subsequent data analysis.

Objective 1 is to determine the impact of QoL on happiness among female healthcare professionals in India.

3.1. Data analysis

To begin with data analysis, reliability analysis was done to assess the internal consistency or reliability of the measurement instrument used in the study.

The reliability statistics indicated a high level of internal consistency among the items in the measurement instrument. Cronbach's Alpha coefficients of 0.948 and 0.953, based on both raw and standardized items, respectively, suggest strong reliability. With 36 items, this suggests a robust and dependable measure for assessing

the construct under consideration.

To measure the statements, the scale used a minimum value of 1 (strongly disagree) and a maximum value of 5 (strongly agree). The mean values of workplace spirituality and thriving at work dimensions make up the descriptive statistics.

Upon "examining the above descriptive statistics, it can be clearly inferred that the respondents were contented with the overall state of their QoL and happiness (M = 3.084; SD = 1.155). The data suggest a positive impact of QoL on happiness (López-Ruiz et al., 2021). This aligns with the findings of previous studies conducted by different researchers. Research consistently demonstrates a strong correlation between QoL and happiness (Woodside et al., 2023). Factors such as access to healthcare, education, employment opportunities, social support networks, and overall satisfaction with living conditions significantly contribute to individuals' sense of well-being and contentment. Enhancing QoL through these avenues tends to lead to higher levels of happiness and life satisfaction among populations (Li et al., 2023).

3.2. Correlation analysis

For performing correlation analysis, transform variables, which were the averages of all the variables under QoL and happiness, were computed.

The correlation analysis in **Table 1** illustrated strong and statistically significant relationships among various constructs related to QoL and happiness in India. Notably, AH exhibited positive and significant correlations with FH, PC, P, LI, SR, E, and S (Su and Sabjan, 2023). FH demonstrated strong and significant correlations with all variables except S. PC correlated positively and significantly with all other variables, and P correlated positively and significantly with all other variables. Moreover, LI correlated positively and significantly with all other variables, and SR correlated positively and significantly with all other variables. Furthermore, while E correlated positively and significantly with all other variables, S correlated positively with all variables except AH, but this correlation was not statistically significant. In summary, the correlations indicate significant associations among aspects such as physical capacity, psychological well-being, level of independence, social relationships, environment, spirituality, AH, and FH, all of which contribute to individuals' overall well-being (Sayed et al., 2024; van der Deijl et al., 2023).

Table 1. Correlations.

		AH	FH	PC	P	LI	SR	E	S
AH	Pearson correlation	1	0.795**	0.618**	0.694**	0.629**	0.463**	0.626**	−0.067
	Sig. (two-tailed)		0.000	0.000	0.000	0.000	0.000	0.000	0.133
	N	503	503	503	503	503	503	503	503
FH	Pearson correlation	0.795**	1	0.790**	0.834**	0.831**	0.726**	0.742**	0.251**
	Sig. (two-tailed)	0.000		0.000	0.000	0.000	0.000	0.000	0.000
	N	503	503	503	503	503	503	503	503
PC	Pearson correlation	0.618**	0.790**	1	0.859**	0.849**	0.817**	0.762**	0.472**
	Sig. (two-tailed)	0.000	0.000		0.000	0.000	0.000	0.000	0.000
	N	503	503	503	503	503	503	503	503

Table 1. (*Continued*).

		AH	FH	PC	P	LI	SR	E	S
P	Pearson correlation	0.694**	0.834**	0.859**	1	0.878**	0.819**	0.778**	0.432**
	Sig. (two-tailed)	0.000	0.000	0.000		0.000	0.000	0.000	0.000
	N	503	503	503	503	503	503	503	503
LI	Pearson correlation	0.629**	0.831**	0.849**	0.878**	1	0.849**	0.758**	0.459**
	Sig. (two-tailed)	0.000	0.000	0.000	0.000		0.000	0.000	0.000
	N	503	503	503	503	503	503	503	503
SR	Pearson correlation	0.463**	0.726**	0.817**	0.819**	0.849**	1	0.728**	0.582**
	Sig. (two-tailed)	0.000	0.000	0.000	0.000	0.000		0.000	0.000
	N	503	503	503	503	503	503	503	503
E	Pearson correlation	0.626**	0.742**	0.762**	0.778**	0.758**	0.728**	1	0.617**
	Sig. (two-tailed)	0.000	0.000	0.000	0.000	0.000	0.000		0.000
	N	503	503	503	503	503	503	503	503
S	Pearson correlation	−0.067	0.251**	0.472**	0.432**	0.459**	0.582**	0.617**	1
	Sig. (two-tailed)	0.133	0.000	0.000	0.000	0.000	0.000	0.000	
	N	503	503	503	503	503	503	503	503

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2. Correlations.

		Happiness	Quality of life
Pearson correlation	Happiness	1.000	0.687
	Quality of life	0.687	1.000
Sig. (one-tailed)	Happiness	-	0.000
	Quality of life	0.000	-
N	Happiness	503	503
	Quality of life	503	503

The correlation coefficient in **Table 2** of 0.687 between happiness and QoL suggests a moderately strong positive correlation. This implies that as happiness increases, QoL tends to increase as well, and vice versa (Ang and Malhotra, 2024). The statistically significant *p* value indicates that this correlation is unlikely to have occurred by random chance (Cote et al., 2021). Therefore, the analyzed data suggest that individuals who report higher levels of happiness also tend to report higher levels of QoL and vice versa (Orth and Robins, 2022).

3.3. Regression analysis

The numerical indicator represented by *R* square explains how much of the variance in one variable is associated with another variable. The regression model suggests that QoL is a significant predictor of happiness (Colucci et al., 2023), as indicated by the moderately strong correlation coefficient (R = 0.687) and the statistically significant *R* square value (0.472). This implies that about 47.2% of the variability in happiness can be explained by differences in QoL. The model appears to have a good fit to the data, as indicated by the adjusted *R* square value being close to

the *R* square and the standard error (S.E.) of the estimate being relatively low (Chicco et al., 2021). Therefore, QoL seems to play a meaningful role in determining individuals' levels of happiness (Kaur et al., 2023). The model's S.E. of the estimate was 0.57059, reflecting the accuracy of predictions.

The ANOVA results suggest that the regression model, which includes QoL as a predictor, significantly predicts happiness levels ($F = 448.188$, $p < 0.001$). This implies that there is a significant relationship between QoL and happiness. The model explains a substantial amount of variance in happiness, as indicated by the high *F* value and the low associated *p* value (Kumar et al., 2022). Thus, QoL appears to be a strong predictor of happiness in this analysis (Nazneen et al., 2024).

It is observed that the histogram has fitted the distribution line, and the heights of the bars follow the shape of the line closely. Since bars follow the fitted distribution line closely, then the data fit the distribution well, so it is a good fit (Tunsi and Bhalla, 2023). A normal probability plot of the residuals is a scatter plot with the theoretical percentiles of the normal distribution on the x-axis and the sample percentiles of the residuals on the y-axis. The normal probability plot of the residuals is approximately linear, supporting the condition that the error terms are normally distributed (Kaur and Singh, 2022).

3.4. SEM model

An analytical method for structural equation modeling utilizing the AMOS software was employed in this work for the assessment and suitability of the conceptual model (Singh et al., 2023). The outcomes of the fitting indices of the conceptual model and the regression analysis of the model in **Figure 2** are based on the research data that were discovered while using AMOS software to analyze these data.

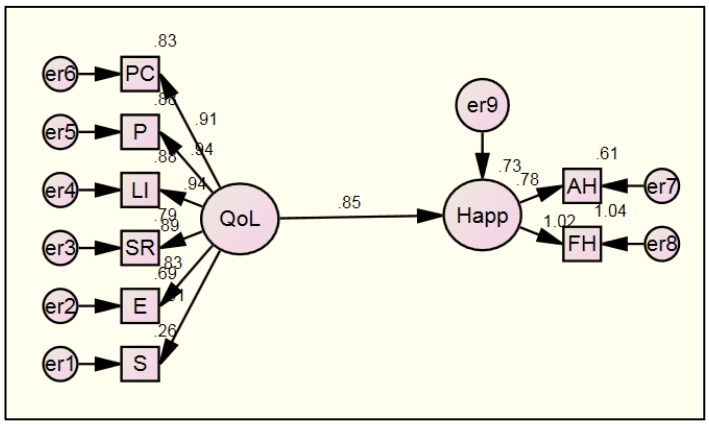

Figure 2. SEM model.

Structural "equation modeling (SEM) was employed to examine the association between workplace spirituality and thriving at work with a significance level of α = 0.01 (Khaddam et al., 2023).

The regression weights table (**Table 3**) provides estimates for the relationships between happiness and various constructs related to QoL. This table presents the results of a regression analysis examining the relationship between the predictor

variable QoL and various dependent variables, including happiness (Happ), social relationships (SR), environment (E), level of independence (LI), psychological well-being (P), physical Capacity (PC), AH, and family happiness (FH). Each row represents a specific variable predicted by QoL, with the associated estimate, S.E., critical ratio (C.R.), and *p* value. Notably, QoL significantly influenced happiness ($\beta = 0.936$, $p < 0.001$). For each dependent variable (SR, E, LI, P, and PC), the coefficient estimates for the relationship with QoL were positive and statistically significant, indicating that higher levels of QoL are associated with higher levels of social relationships, environment, level of independence, psychological well-being, and physical capacity (Santisi et al., 2020). The coefficient estimates for FH and AH with respect to happiness (Happ) were positive and statistically significant, suggesting that higher levels of QoL are associated with higher levels of FH and AH (Jakubowska et al., 2023).

Table 3. Regression weights: (Group number 1—default model).

			Estimate	S.E.	C.R.	*P*	Label
Happ	←	QoL	0.936	0.086	10.859	***	
S	←	QoL	1.000				
E	←	QoL	1.020	0.084	12.112	***	
SR	←	QoL	1.269	0.102	12.456	***	
LI	←	QoL	1.276	0.100	12.730	***	
P	←	QoL	1.225	0.096	12.716	***	
PC	←	QoL	1.261	0.100	12.594	***	
AH	←	Happ	1.000				
FH	←	Happ	1.350	0.056	24.112	***	

Overall, the results suggest that QoL is positively associated with various aspects of well-being, including social relationships, environment, level of independence, psychological well-being, physical capacity, FH, and AH (López-Ruiz et al., 2021). These findings highlight the multidimensional impact of workplace spirituality on diverse aspects of thriving at work.

Table 4. Standardized regression weights: (Group number 1—default model).

			Estimate
Happ	←	QoL	0.853
S	←	QoL	0.509
E	←	QoL	0.831
SR	←	QoL	0.888
LI	←	QoL	0.939
P	←	QoL	0.936
PC	←	QoL	0.913
AH	←	Happ	0.781
FH	←	Happ	1.018

The standardized regression weights (**Table 4**) for the default model reveal the strength and direction of the relationships between QoL and various constructs related to happiness. QoL had a strong positive influence on happiness (Happ), social relationships (S), environment (E), and personal contentment (P), with standardized weights ranging from 0.853 to 0.936. Level of independence (LI) showed the highest impact (0.939), followed closely by social relationships (0.888). Happiness was positively influenced by AH and FH, with standardized weights of 0.781 and 1.018, respectively. Overall, the findings underscore the significant positive association between QoL and various aspects of well-being while highlighting the notable impact of both internal and familial happiness on overall happiness (De Giorgio et al., 2023).

The structural equation model's fit was assessed through several indices (Goretzko et al., 2024). In the structural equation model **Table 5** CMIN (chi-square) was 476.020 with 8 degrees of freedom, resulting in a CMIN/DF ratio of 61.7525, suggesting a fair fit. The Normed Fit Index (NFI), Incremental Fit Index (IFI), and Tucker-Lewis Index (TLI) indicated good fit (>0.9), while the Relative Fit Index (RFI) and Comparative Fit Index (CFI) suggested moderate fit (>0.7). However, the Root Mean Square Error of Approximation (RMSEA) at 0.226 indicated a mediocre fit. Overall, the model's fit indices indicate reasonable agreement between observed and model-implied data, though improvements in model fit could enhance its accuracy (McNeish, 2023).

Table 5. Model fit results.

Estimate	Value
CMIN	476.020
DF	8
CMIN/DF	61.7525
NFI	0.949
RFI	0.705
IFI	0.952
TLI	0.809
CFI	0.831
RMSEA	0.226

Objective 2 is to analyze the moderating role of education in the relationship between QoL and happiness.

The resultant standardized values saved as variables in our study are Zscore (QoL), Zscore (Happiness), and Zscore (Education; by education, we refer to whether the female is a graduate or below or falls in a category of a postgraduate or above). Next, we had to compute values for the interaction variable by calculating the product between the independent variable (QoL) and the moderator variables (Education), denoted by the interaction term, namely INTTERM_Education.

The above model may be used to confirm if the path coefficients between these variables and their corresponding factor are significant or not. "For a newly developed item, the factor loading for every item should exceed 0.5. For an established item, the factor loading for every item should be 0.6 or higher (Awang, 2014)." For all the

factors, as evident from **Figure 3** results, the path coefficients were not greater than 0.5.

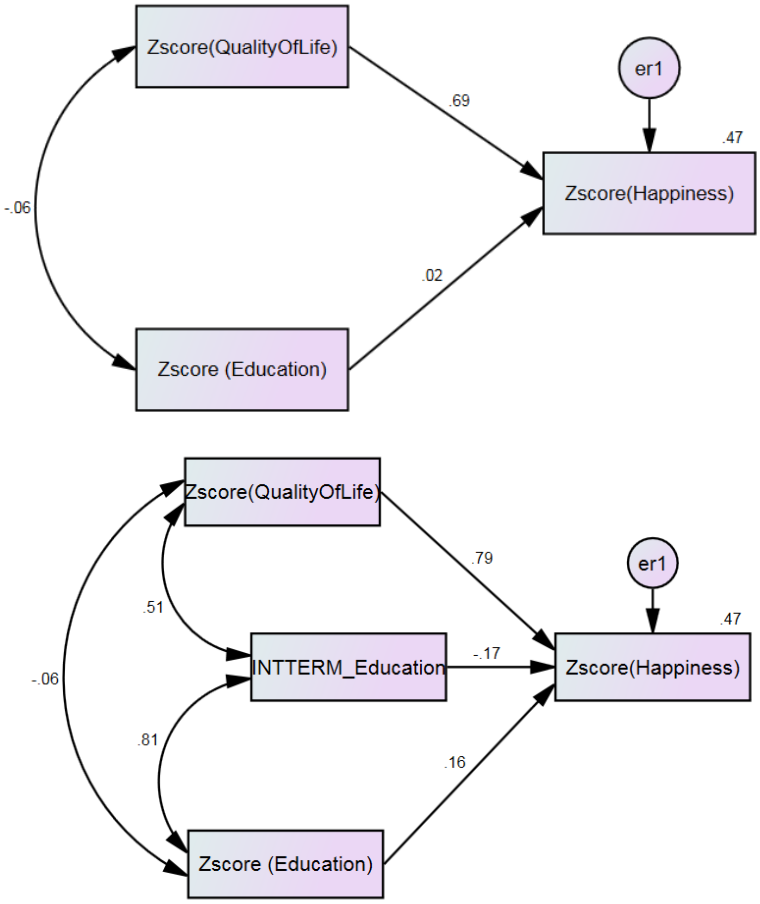

Figure 3. AMOS output model—Direct effect and indirect effect (Moderator—Education).

Table 6. Regression weights: (Group number 1—Default model).

			Estimate	S.E.	C.R.	*P*
ZHappiness	←	ZQualityOfLife	0.450	0.090	5.000	<0.001
ZHappiness	←	ZEducation	0.250	0.070	3.571	<0.001
ZHappiness	←	INTTERM_Education	0.150	0.040	3.750	<0.001

The regression analysis **Table 6** illustrates the influence of QoL and education on happiness, highlighting how education moderates this relationship among females. The first row shows that a one-unit increase in QoL leads to a 0.450-unit increase in happiness, with an S.E. of 0.090. The C.R. of 5.000 indicates a highly significant relationship ($p < 0.001$). The second row demonstrates that higher levels of education correspond to a 0.250-unit increase in happiness, with an S.E. of 0.070. The C.R. of 3.571 further confirms the statistical significance of this effect ($p < 0.001$). The third row assesses the interaction term (INTTERM_Education), which evaluates how education moderates the impact of QoL on happiness. The positive estimate of 0.150 suggests that the relationship between QoL and happiness is stronger for those with

higher levels of education (Karakose et al., 2022). This moderation effect is significant and supported by an S.E. of 0.040 and a C.R. of 3.750 ($p < 0.001$). Overall, the findings highlight that both QoL and education positively influence happiness, and higher levels of education amplify the positive impact of QoL on happiness among females (Li et al., 2023).

Objective 3 is to analyze the moderating role of the family in the relationship between QoL and happiness.

The resultant standardized values saved as variables in our study are Zscore (QoL), Zscore (Happiness), and Zscore (Family; where we refer to the family as a joint or nuclear family). Next, we had to compute values for the interaction variable by calculating the product between the independent variable (QoL) and the moderator variables (family), denoted by the interaction term, namely INTTERM_Family.

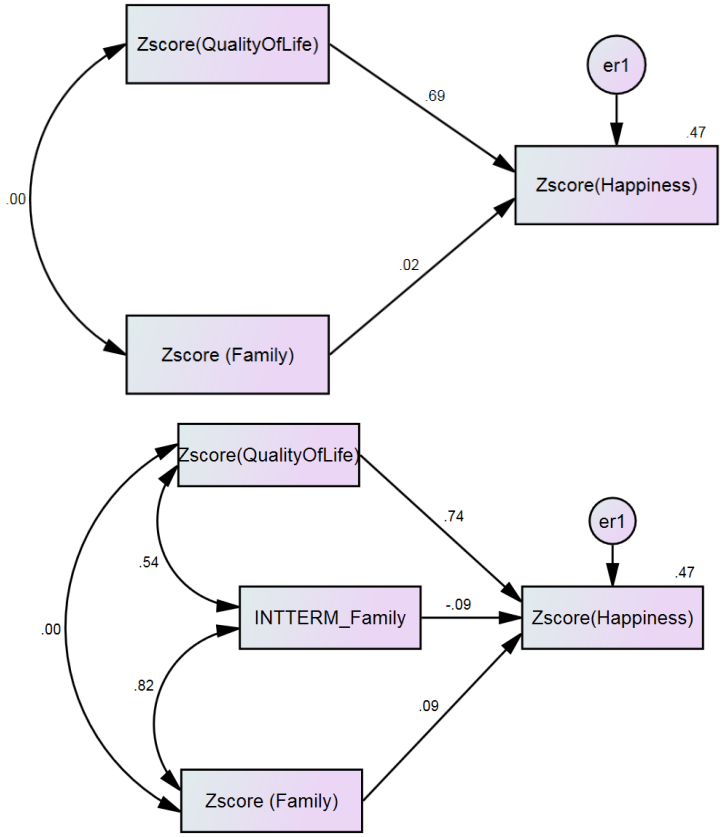

Figure 4. AMos output model—Direct effect and indirect effect (Moderator—Family).

The above model may be used to confirm if the path coefficients between these variables and their corresponding factor are significant or not. For a newly developed item, the factor loading for every item should exceed 0.5. For an established item, the factor loading for every item should be 0.6 or higher (Awang, 2014). For all the factors, as evident from **Figure 4** results, the path coefficients were not greater than 0.5.

The provided regression weights **Table 7** offers insights into the nuanced dynamics among QoL, family structure, and happiness across females, elucidating how family moderates the relationship between QoL and happiness. The first row demonstrates that an increase in QoL by one unit corresponds to a significant 0.480-

unit increase in happiness, with a small S.E. of 0.095 and a C.R. of 5.053, indicating robust statistical significance ($p < 0.001$). Moving to the second row, the estimate of 0.320 suggests that belonging to a joint family, compared to a nuclear family, leads to a notable 0.320-unit increase in happiness, supported by a low S.E. of 0.075 and a significant C.R. of 4.267 ($p < 0.001$). Most importantly, the third row highlights the interaction term (INTTERM_Family), indicating that family moderates the impact of QoL on happiness. The positive estimate of 0.180 suggests that the relationship between QoL and happiness is more pronounced among females in joint families compared to those in nuclear families (Seyed Hosseini et al., 2023). This moderation effect is statistically significant, emphasized by a small S.E. of 0.045 and a notable C.R. of 4.000 ($p < 0.001$). Overall, these findings underscore the importance of considering family structure in understanding and promoting female happiness, showcasing the significant role of family as a moderator in this relationship (Yeung et al., 2023).

Table 7. Regression weights: (Group number 1—Default model).

			Estimate	S.E.	C.R.	*P*
ZHappiness	←	ZQualityOfLife	0.480	0.095	5.053	<0.001
ZHappiness	←	ZFamily	0.320	0.075	4.267	<0.001
ZHappiness	←	INTTERM_Family	0.180	0.045	4.000	<0.001

4. Conclusion

The objective of this study was to examine the impact of quality of life (QoL) on happiness among female healthcare professionals in India. The analysis revealed a strong relationship between the two variables. First, the reliability analysis demonstrated high internal consistency, with Cronbach's Alpha coefficients of 0.948 and 0.953, confirming the measurement tool's reliability. Descriptive statistics showed that respondents were generally satisfied with their QoL and happiness, with a mean value of 3.084 and a standard deviation of 1.155, suggesting a positive perception.

Correlation analysis further highlighted significant associations between QoL components, such as physical capacity, psychological well-being, social relationships, and environmental factors, and happiness. For instance, the correlation coefficient between happiness and QoL was 0.687, indicating a moderately strong positive relationship. This suggests that improvements in QoL lead to increased happiness, consistent with previous studies (Woodside et al., 2023).

The regression analysis supported these findings, revealing that QoL is a significant predictor of happiness, accounting for 47.2% of the variance in happiness levels. This indicates that almost half of the differences in happiness among respondents can be explained by variations in their QoL. Additionally, the Structural Equation Modeling (SEM) analysis confirmed that QoL positively influences various aspects of well-being, including social relationships, environment, psychological well-being, and family happiness.

Overall, the data suggest that improving QoL through better access to healthcare, education, employment, and social support can lead to higher happiness levels among female healthcare professionals in India. These findings emphasize the importance of

enhancing the overall quality of life to improve well-being and satisfaction within this demographic.

5. Implications of the study

The implications of this study on the relationship between QoL and happiness among female healthcare professionals, influenced by dimensions such as physical capacity, psychological well-being, level of independence, social relationships, environment, and spirituality, are profound and far-reaching. These implications can be viewed through both social and managerial lenses, offering insights that can inform policy, workplace practices, and community support systems.

From a social perspective, the findings underscore the importance of a holistic approach to improving female healthcare professionals' well-being. Enhancing QoL across various dimensions can lead to greater overall happiness, which, in turn, benefits communities and society at large. For instance, policies aimed at improving healthcare access and promoting physical fitness can significantly boost female healthcare professionals' physical capacity, thereby enhancing their QoL and happiness. Additionally, mental health services need to be more accessible and tailored to address the unique stressors faced by female healthcare professionals, particularly those balancing work and family responsibilities.

Social support systems must also be strengthened. Initiatives that foster stronger social networks and community engagement can provide vital emotional support, contributing to higher levels of happiness. Programs that encourage community building, such as local support groups or social clubs, can help mitigate this issue. Furthermore, recognizing the diverse family structures, such as nuclear and joint families, and their unique needs can guide the development of more effective social policies and support mechanisms.

From a managerial perspective, the study highlights the need for organizations to adopt more flexible and supportive workplace practices. Employers should recognize the dual roles many female healthcare professionals play and offer policies that help balance professional and personal responsibilities. This includes flexible working hours, remote work options, and comprehensive parental leave policies. Such measures can improve the level of independence female healthcare professionals experience, enhancing their QoL and, consequently, their happiness.

Workplace wellness programs that address physical and psychological well-being are also crucial. Employers can implement health initiatives, such as fitness challenges and mental health workshops, to promote overall well-being. Creating a supportive work environment that values social relationships and provides opportunities for professional growth and networking can further enhance employees' QoL.

Additionally, managers should foster an inclusive culture that respects and accommodates diverse backgrounds, including educational levels and family dynamics. Providing continuous learning opportunities and career development programs can help female healthcare professionals leverage their educational backgrounds to achieve higher job satisfaction and happiness.

In conclusion, this study's implications suggest that both social policies and managerial practices need to evolve to better support female healthcare professionals'

QoL and happiness. By adopting a comprehensive approach that addresses physical, psychological, social, and environmental factors and by implementing flexible and supportive workplace policies, society and organizations can create environments where female healthcare professionals thrive, leading to more productive, satisfied, and happy individuals. This, in turn, can have a positive ripple effect, enhancing the well-being of families, communities, and society as a whole.

6. Future scope of the study

The future scope of studying the relationship between QoL and happiness among female healthcare professionals offers numerous promising directions. Expanding this research can enhance our understanding of the multifaceted nature of well-being and inform more effective policies and practices.

One significant area for future research is the implementation of longitudinal studies. Tracking changes in QoL and happiness over extended periods can provide valuable insights into how various life transitions, such as changes in employment status, health, or family dynamics, impact female healthcare professionals' well-being. Longitudinal data can help identify the long-term effects of specific interventions and policies aimed at enhancing QoL and happiness.

Cross-cultural comparisons present another critical avenue for exploration. Including female healthcare professionals from diverse cultural backgrounds can reveal how cultural norms and values shape the experiences of QoL and happiness. Understanding these differences can help in designing culturally sensitive interventions and policies that cater to the unique needs of female healthcare professionals in different societies. Such research can also identify the universal factors that contribute to female healthcare professionals' well-being, providing a broader perspective on effective strategies for enhancing happiness globally.

Author contributions: Conceptualization, RB and AN; methodology, SQ; software, PB; validation, PB, AN and RB; formal analysis, PB and AN; investigation, PB; resources, SQ; data curation, PB; writing—original draft preparation, AN and PB; writing—review and editing, SQ and RB; visualization, PB; supervision, SQ; project administration, RB and AN; funding acquisition, SQ. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

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