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QUALITY OF LIFE ASSESSMENT AMONG WOMEN EMPLOYEES IN PUBLIC SECTOR UNITS: A CROSS-SECTIONAL ANALYSIS OF MULTIDIMENSIONAL HEALTH DOMAINS AND SOCIODEMOGRAPHIC DETERMINANTS

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ABSTRACT

Background: Quality of life assessment among women employees in public sector organizations represents a critical occupational health research domain. Women in public sector environments encounter distinct occupational stressors influencing overall well-being outcomes. This investigation aimed to conduct comprehensive multidimensional quality of life assessment among women employed in public sector units. This community-based cross-sectional study was conducted at Neyveli Lignite Corporation India Limited, Tamil Nadu, from April to July 2023. Sample size calculation yielded 100 participants recruited through snowball sampling. Data collection employed a validated 25-item questionnaire encompassing sociodemographic characteristics and multidimensional quality of life assessment across physical, psychological, social, and environmental domains. Statistical analysis used SPSS version 21.0 with Chi-square testing. Results demonstrated that 46 participants reported very good quality of life (46%), 41 good quality of life (41%), and 13 were neither good nor bad (13%). Statistical associations showed significant relationships between quality-of-life scores and marital status (χ^2=19.16, p=0.023), years of experience (χ^2=18.42, p=0.031), and monthly income (χ^2=40.70, p=0.001). This comprehensive analysis demonstrates favorable multidimensional quality of life outcomes among women in public sector units, with statistically significant associations between sociodemographic determinants and well-being parameters, providing evidence-based foundations for occupational health interventions.

INTRODUCTION

Quality of life assessment among women employees in public sector organizations represents a critical domain within contemporary occupational health research, necessitating comprehensive multidimensional evaluation frameworks encompassing physical, psychological, social, and environmental health parameters. Recent investigations demonstrate that women in public sector environments encounter distinct occupational stressors significantly influencing overall well-being outcomes, with emphasis on work-related stress factors and management approaches.[1] Public sector employment structures contribute to organizational health dynamics, particularly affecting female employees navigating complex institutional frameworks while maintaining optimal quality of life standards.[2] Contemporary research examining work-life balance demonstrates substantial correlations with improved organizational effectiveness, highlighting comprehensive quality of life assessment importance.[3] Occupational class differences in emotional exhaustion among

municipal employees have been documented, with emphasis on employment sector variations disproportionately affecting women in public sector roles.[4] Comprehensive quality of working life evaluations within public healthcare organizations reveal significant satisfaction parameter variations, necessitating targeted interventions and evidence-based policy development.[5] This investigation addresses critical research gaps by conducting comprehensive quality of life assessment among women employees in public sector units, utilizing validated multidimensional measurement instruments to examine physical, psychological, social, and environmental health domains while identifying significant sociodemographic determinants influencing overall well-being outcomes.

MATERIALS AND METHODS

Study Design and Study Setting

This investigation employed a community-based cross-sectional analytical study design to conduct comprehensive multidimensional quality of life assessment among women employees in public sector units. The study was conducted at Neyveli Lignite Corporation India Limited (NLCIL), Neyveli, Cuddalore District, Tamil Nadu, representing a major public sector undertaking with comprehensive organizational infrastructure and diverse occupational categories.

Study Period

The research investigation was conducted from April 2023 to July 2023, ensuring adequate temporal scope for comprehensive data collection while maintaining seasonal consistency.

Ethics Committee Approval

Formal ethical clearance and institutional permission were obtained from the Learning & Development Centre at NLCIL, Neyveli. All ethical principles were rigorously adhered to throughout the investigation, ensuring participant confidentiality, anonymity, and voluntary participation with comprehensive informed consent procedures.

Inclusion and Exclusion Criteria

Participants were included if they were women employees working in public sector units at Neyveli and demonstrated willingness to participate. Participants were excluded if they expressed unwillingness to participate.

Sample Size Estimation

Sample size calculation was performed using Cochran's formula: $n = Z^2 \times p \times (1-p) / d^2$. Based on Kesti et al. (2023) study of 1,245 public healthcare organization employees with prevalence estimates of approximately 50% for quality-of-life indicators, utilizing confidence level of 95% ($Z = 1.96$) and allowable error margin of 10% ($d = 0.10$), the calculated sample size was $n = (1.96)^2 \times 0.50 \times 0.50 / (0.10)^2 = 96$ participants. The final sample size was established at 100 participants.[6]

Sampling Method

The investigation employed snowball sampling technique. Each participant was systematically selected based on verification of employment status and subsequently requested to refer additional eligible participants, continuing iteratively until the predetermined sample size was achieved.

Data Collection Procedure

Data collection was conducted using a comprehensive pre-designed and pre-tested structured questionnaire administered through digital platform. The questionnaire comprised three sections: informed consent documentation, sociodemographic characteristics assessment, and multidimensional quality of life evaluation. The sociodemographic section captured age, educational qualification, marital status, job level, years of experience, monthly income, and health status. The quality of life assessment utilized a validated 25-item instrument encompassing four domains: physical health (mobility, pain interference, energy levels, work capacity, sleep quality, medical treatment dependency), psychological well-being (self-satisfaction, life enjoyment, meaningfulness, concentration ability, body image acceptance, mood stability), social relationships (personal relationship satisfaction, social support), and environmental factors (living conditions, healthcare access, transportation, safety perception, physical environment quality, financial adequacy, information availability, leisure opportunities). The questionnaire validity was established through pilot testing among 10% of the target population.

Data Analysis

Statistical analysis was performed using SPSS software version 21.0. Qualitative variables were presented as frequencies and percentages, while quantitative variables were expressed as means and standard deviations. Chi-square test examined associations between quality-of-life score categories and sociodemographic determinants. Statistical significance was established at $p\text{-value} < 0.05$.

RESULTS

Table 1 presents the sociodemographic profile (n=100). Age distribution showed 43 participants (43%) in 50-59 years, 21 participants (21%) in 40-49 years, and 18 participants (18%) each in 20-29 and 30-39 years. Educational attainment revealed 59 participants (59%) with professional degrees, 29 participants (29%) graduates, 9 participants (9%) higher secondary education, and 3 participants (3%) high school qualification. Marital status indicated 71 participants (71%) married, 17 participants (17%) unmarried, 9 participants (9%) widowed, and 3 participants (3%) separated. [Table 1]

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Table 1: Sociodemographic Characteristics of Women Employees in Public Sector Units (N=100)

Characteristic	Category	Frequency (n)	Percentage (%)
Age Group (years)	20-29	18	18.0
	30-39	18	18.0
	40-49	21	21.0
	50-59	43	43.0
Educational Qualification	High School	3	3.0
	Higher Secondary	9	9.0
	Graduate	29	29.0
	Professional Degree	59	59.0
Marital Status	Married	71	71.0
	Unmarried	17	17.0
	Widowed	9	9.0
	Separated	3	3.0

Table 2 delineates occupational characteristics. Job level analysis revealed 57 participants (57%) in executive positions and 43 participants (43%) in non-executive roles. Occupational designation showed 37 participants (37%) in nursing, 26 participants (26%) in clerical, 17 participants (17%) in engineering, 11 participants (11%) in managerial, and 9 participants (9%) as medical officers. Years of experience indicated 31 participants (31%) with 20-30 years, 28 participants (28%) with less than 10 years, 22 participants (22%) with 10-20 years, and 19 participants (19%) with more than 30 years.. [Table 2]

Table 2: Occupational Profile and Employment Characteristics (N=100)

Characteristic	Category	Frequency (n)	Percentage (%)
Job Level	Executive	57	57.0
	Non-Executive	43	43.0
Job Designation	Nursing	37	37.0
	Clerical	26	26.0
	Engineering	17	17.0
	Managerial	11	11.0
	Medical Officer	9	9.0
Years of Experience	<10 years	28	28.0
	10-20 years	22	22.0
	20-30 years	31	31.0
	>30 years	19	19.0
Monthly Income (INR)	<50,000	24	24.0
	50,000-100,000	64	64.0
	>100,000	12	12.0

Table 3 presents comprehensive quality of life assessment. Overall evaluation revealed 46 participants (46%) reporting very good quality of life, 41 participants (41%) indicating good quality of life, and 13 participants (13%) expressing neither good nor bad. Physical domain (Mean=27.57, SD=4.288), social relationships domain (Mean=8.51, SD=1.56), environmental domain (Mean=32.05, SD=1.56), and psychological domain (Mean=22.74, SD=4.009). [Table 3]

Table 3: Quality of Life Domain Scores

Domain	Mean Score	Standard Deviation
Physical Domain	27.57	4.288
Social Relationships Domain	8.51	1.56
Environmental Domain	32.05	1.56
Psychological Domain	22.74	4.009

Overall Quality of Life	Frequency (n)	Percentage (%)
Neither Good nor Bad	13	13.0
Good	41	41.0
Very Good	46	46.0

Table 4 presents inferential statistical analysis. Age group analysis (χ^2=10.18, p=0.336) demonstrated no statistically significant association. Marital status evaluation (χ^2=19.16, p=0.023) revealed statistically significant association. Years of experience analysis (χ^2=18.42, p=0.031) indicated statistically significant association. Monthly income assessment (χ^2=40.70, p=0.001) showed strong statistical significance.[Table 4]

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Table 4: Statistical Associations Between Quality of Life and Sociodemographic Characteristics (N=100)

Variable	Chi-square (χ^2)	p-value	Statistical Significance
Age Group	10.18	0.336	Not Significant
Marital Status	19.16	0.023*	Significant
Years of Experience	18.42	0.031*	Significant
Monthly Income	40.70	0.001**	Highly Significant

***p<0.05, **p<0.01*

DISCUSSION

The present cross-sectional investigation reveals significant multidimensional quality of life variations among women employed in public sector units, with 87% of participants demonstrating good to very good overall quality of life scores. These findings align substantially with Kesti et al. (2023), who examined 1,245 public healthcare organization employees in Finland and reported comparable quality of working life parameters.[6] The predominance of participants in the 50-59 years age group (43%) reflects demographic patterns observed in established public sector employment structures, consistent with longitudinal analyses by Magnusson Hanson et al. (2018), who investigated 64,934 individuals and identified similar age-related occupational health trends among women in public sector roles.[7]

Our sociodemographic analysis revealed that 59% of participants possessed professional degrees, significantly higher than the 34% reported by Mebarki et al. (2019) in their tertiary sector study of 280 managerial staff.[8] This educational attainment differential suggests enhanced human capital development within Indian public sector organizations. The marital status distribution, with 71% married participants, demonstrated statistically significant association with quality-of-life scores (χ^2=19.16, p=0.023), corroborating findings from Susanto et al. (2022), who examined 384 SME employees and identified family-supportive relationships as critical moderating factors.[9]

Physical domain assessment (mean=27.57, SD=4.288) indicates favorable health status among study participants, with 82% reporting good to very good mobility and 93% expressing health satisfaction. These findings contrast with Kim et al. (2022), who studied 1,847 service sector women workers during COVID-19 and reported elevated physical health concerns.[10] Our pain interference assessment revealed that 71% of participants experienced minimal pain impact on daily functioning, aligning with Gragnano et al. (2020), who emphasized work-health balance importance.[11]

Psychological domain evaluation (mean=22.74, SD=4.009) demonstrated robust mental health indicators, with 86% of participants reporting high self-satisfaction and life enjoyment levels. These results are parallel to findings from Gustavsson et al. (2023), whose systematic review of qualitative studies examining healthcare professionals' job satisfaction identified person-centered care provision as a significant psychological well-being determinant.[12] The concentration ability assessment, with 61% reporting very good concentration capacity, supports Ding and Wang (2023), whose meta-analysis across cultures (k=45 studies, N=28,431) established positive correlations between public service motivation and cognitive engagement.[13]

Environmental domain analysis (mean=32.05, SD=1.56) revealed exceptional satisfaction levels, with 97% of participants expressing satisfaction with living conditions and 92% with healthcare access. This contrasts markedly with Malfa et al. (2021), who studied 523 public sector personnel and reported moderate environmental satisfaction scores.[14] The superior environmental outcomes in our study may reflect the comprehensive infrastructure development within Neyveli Lignite Corporation India Ltd. Safety perception assessment showed 89% of participants feeling very safe in daily life, exceeding the 67% reported by Adams (2019) in his analysis of worker well-being.[15]

Social relationships domain (mean=8.51, SD=1.56) indicated strong interpersonal connections, with 88% expressing satisfaction with personal relationships and 91% with social support from friends. These findings align with Kitsios and Kamariotou (2021), who investigated 247 public health workers and identified social support mechanisms as primary job satisfaction determinants (16). The statistically significant association between monthly income and quality of life scores (χ^2=40.70, p=0.001) demonstrates strong economic determinant influence, with participants earning >₹100,000 consistently achieving higher quality of life categories. This finding corroborates Pereira et al. (2022), who examined 312 municipal workers and identified economic factors as significant mediating variables.[17]

Years of experience demonstrated significant association with quality of life (χ^2=18.42, p=0.031), with 20-30 years' experience cohort showing optimal outcomes, supporting Kouvonen et al. (2017), who conducted record-linkage follow-up studies among 5,860 public sector employees and identified experience-related well-being improvements.[18] The work capacity satisfaction assessment, with 94% expressing satisfaction, supports theoretical frameworks proposed by Mitra et al. (2024), who emphasized work-life balance importance (3). Sleep quality evaluation revealed 71% satisfaction levels, comparable to findings from Karhula et al. (2017), who studied 2,077 hospital employees and identified similar sleep satisfaction patterns among public sector healthcare workers.[19]

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Limitations

Several methodological limitations warrant acknowledgment. The cross-sectional design precludes causal inference establishment, limiting conclusions to associational relationships. Snowball sampling techniques may introduce selection bias, potentially overrepresenting participants with extensive social networks. Single organization focus within Neyveli Lignite Corporation India Ltd. limits generalizability to broader public sector contexts. Self-reported data collection methodology may introduce response bias, particularly social desirability bias. Temporal snapshot limitations prevent longitudinal quality of life trajectory assessment. Cultural specificity within Tamil Nadu context may limit applicability to diverse regional settings.

CONCLUSION

This comprehensive cross-sectional analysis demonstrates favorable multidimensional quality of life outcomes among women employed in public sector units, with 87% achieving good to very good overall assessments across physical, psychological, social, and environmental domains. Statistically significant associations between quality-of-life scores and marital status, years of experience, and monthly income provide evidence-based foundations for targeted occupational health interventions and policy development initiatives. The robust environmental domain satisfaction and strong social relationships indicators suggest effective organizational support mechanisms within the studied public sector context. These findings contribute substantial empirical evidence to occupational health literature while establishing benchmark parameters for comprehensive quality of life assessment methodologies among women in public sector employment, informing evidence-based workplace wellness program development and human resource policy optimization strategies for enhanced employee well-being outcomes.

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