

The Factors which Impact the Performance of Public Health Midwives of the Medical Officer of Health Areas in Nuwara Eliya District

Public Health
Midwives

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Abstract

Public Health Midwives (PHM) are the front-line health workers responsible for the provision of Maternal and child health (MCH) care. Despite having the best MCH indicators in the region, the Demographic and Health Survey (2016) reported significant disparities in MCH care between districts in Sri Lanka. The objective of the study was to assess the factors which impact the performance of PHMs of the medical officer of health areas in Nuwara Eliya District. A descriptive cross-sectional study was carried out among a convenient sample of 169 PHMs in the Nuwara Eliya district using a self-administered questionnaire. The data were analysed concerning proportions (quantitative data) and associations (multiple linear regression). The main findings indicate that independent variables job satisfaction and supervision had a significant positive linear correlation with performance while motivation had a significant negative linear correlation with performance. Leadership's moderating effect on the relationship between independent variables and the dependent variable 'performance' was insignificant. Hence, the factors related to the job satisfaction of the midwives need to be optimized in the district to obtain maximum service from them. The impact of motivation on the performance of PHMs needs to be further studied. The moderating effect of the Medical Officer of Health's (MOH) leadership also needs to be further investigated since the leadership role of the MOH may be deficient.

Key words: MCH care, Midwives, Job performance, leadership

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Introduction

Background

The maternal and child health (MCH) care policy practiced in Sri Lanka comprises four main components (*National Policy on Maternal and Child Health*, 2012). They include maternal health, child health, the health of women, and family planning. The national-level focal point of the provision of MCH services in the country is Family Health Bureau (FHB) (Perera, Assefa & Amilani, 2021). Regional Director of Health Services (RDHS) offices serve as the decentralizing units in each district for the service.

Maternal and childcare is an individual's first point of contact with the national health system. It aims to offer integrated, accessible healthcare services by a variety of healthcare providers including Public Health Midwife (PHM), Senior Public Health Midwife (SPHM), Public Health Nursing Sister (PHNS), and Medical Officer of Health (MOH), in a clinic setting or through home visits.

PHMs are attached to the MOH offices. Each PHM is responsible for a demarcated geographical service area. The PHM provides public health care services to this identified population.

Although it had been a significant challenge to provide MCH care services in developing countries, the Sri Lankan health sector has achieved remarkably successful results largely due to its effective public delivery system (The Economist Intelligence Unit 2014). The preventive part of MCH care is delivered by the strong and organized PHM network which spreads over the whole country from the capital city to every village of the island (Senanayake et al., 2011).

Problem Identification

Despite successful MCH indicators, significant disparities of MCH care exist between districts (Department of Census and Statistics [DCS] & Ministry of Health, Nutrition and Indigenous Medicine, 2017). Key findings of the last published Demographic and Health Survey (2016) report demonstrate the lack of uniformity of the MCH services within the country. The paragraph given below summarizes the relevant findings of the report.

In the estate sector, half (51%) of the ever-married women with a birth in the last five years received Ante Natal Care (ANC) services from an obstetrician compared to 65% or more for those in the urban or rural sector. In the Matale district, obstetricians provided 80% of ANC services compared to only 55% in the Nuwara Eliya district. A minority (42.1%) of women had their first ANC visit within 8 weeks of the pregnancy in the estate sector while the majority of urban women (57.8%) and rural women (54.9%) received early antenatal care. The lowest percentage of protection from Tetanus (92%) was observed in the Nuwara Eliya and the Mannar districts. The highest values for low birth weights were observed in the Ratnapura, the Nuwara Eliya, and the Matara districts, where more than one in five children are born with low birth weight. Nuwara Eliya district reported the highest level of stunting (32%) among children. The

prevalence of short stature among ever-married women was three times higher in the estate sector (15%) compared to the urban sector (5%).

To overcome these disparities, the Sri Lankan health sector must further improve the provision of MCH care to identified districts such as Nuwara Eliya. Therefore, approaches for the improvement of MCH care in these districts must be explored extensively. The most important area for consideration is the care provision at the first contact point of the MCH services, i.e., at the PHM level as further MCH care is decided upon this. Thus, assessment of factors affecting the performance of PHMs is important to identify the gaps in service provision and to take remedial measures. Assessment of rectifiable organisational factors such as motivation, job satisfaction, supervision and leadership is warranted rather than geographical and sociocultural factors which are less feasible to address.

The Nuwara Eliya district has its own geographical and socio-cultural characteristics (Department of Census and Statistics, 2011). From historical times Nuwara Eliya is identified as the district which provides a negative contribution to the maternal and child care of the country (Gunathunga & Fernando, 2000). PHMs working in the Nuwara Eliya district must face specific climatic, geographical, and sociocultural challenges while proceeding with their work. Therefore, they need to strive harder to solve difficulties while providing services. Many factors affect the performance of the PHM in the Nuwara Eliya district, and these factors must be scientifically analyzed before taking steps to strengthen the MCH program of the district.

Therefore, an assessment of the factors affecting the performance of PHMs of the Nuwara Eliya district is a tentative research problem.

Objectives

1. To assess the impact of the motivation on the performance of PHMs in the Nuwara Eliya District.
2. To assess the impact of the job satisfaction on the performance of PHMs in the Nuwara Eliya District.
3. To assess the impact of the supervision by supervisors on the performance of PHMs in the Nuwara Eliya District.
4. To define the moderator effect of leadership of the immediate supervisor on the relationship between motivation and the performance of PHMs in the Nuwara Eliya District.
5. To define the moderator effect of leadership of the immediate supervisor on the relationship between job satisfaction and the performance of PHMs in the Nuwara Eliya District.
6. To define the moderator effect of leadership of the immediate supervisor on the relationship between supervision and the performance of PHMs in the Nuwara Eliya District.

Significance of the Study

Maternal and childcare indicators in the country have drastically improved over the past several decades and surpassed the regional averages. The Ministry of Health spends a significant amount of money annually in improving these services, with the ultimate objective of achieving the Sustainable Development Goals (SDG) as outlined by the WHO. Studies on PHM performances were conducted in Sri Lanka sparingly (Gunathunga & Fernando, 2000; Jayathilake et al., 2021). None of these studies covered the Nuwara Eliya District despite its geographical and sociocultural importance. The study will help relevant health planners and administrators in improving the services further and minimizing the disparities at the district level.

Furthermore, this study is also aimed at filling a lacuna in the literature related to the performance of public health staff in the preventive healthcare sector in Sri Lanka.

Literature Review

Introduction

The World Health Organization (WHO) has stressed the need to evaluate the performance of health workers since the mid-20th century (Katz & Snow, 1980). The performance assessment of community-based health workers, delivering primary health care became a concern following the Alma Ata conference in 1978 (World Health Organization, 1978). Since then, attempts have been made to assess various aspects of their performance and identify factors that affect the performance using different methods. A literature review of studies conducted in the health sector of low resource settings defined job performance as adherence to an accepted standard or guideline (Rowe et al., 2005). Thao and Hwang (2015) provided a fundamental definition of employee performance. They identified "the successful completion of challenges by members of a team according to predetermined acceptable standards by using available resources efficiently and effectively" as employee performance.

Work Performance Factors

An essential step toward improving performance is, understanding the factors that influence it (Rowe et al., 2005). In their review of research undertaken in the health sector of low- and middle-income countries, they classified possible determinants of performance into several categories including health-worker factors, patient factors, attributes of the work, health facility environment, educational background, administrative environment, and external environment. They included leadership into the administrative environment factors category.

Advocates of Human Performance Technology (HPT) look at the performance factors from a different perspective. Human performance technology is a professional field of study and application, the main purpose of which is to engineer systems that allow people and organizations to perform in ways that they and all stakeholders value (Pershing, 2006). HPT experts have established a list of factors that can predict an optimal worker performance in a variety of areas, and this includes clear job expectations; performance feedback; adequate environment and tools; motivation and/or incentives; knowledge and skills and organizational support ((Fort & Voltero,

2004). A framework for the performance factors and employee performance is illustrated in figure 1.

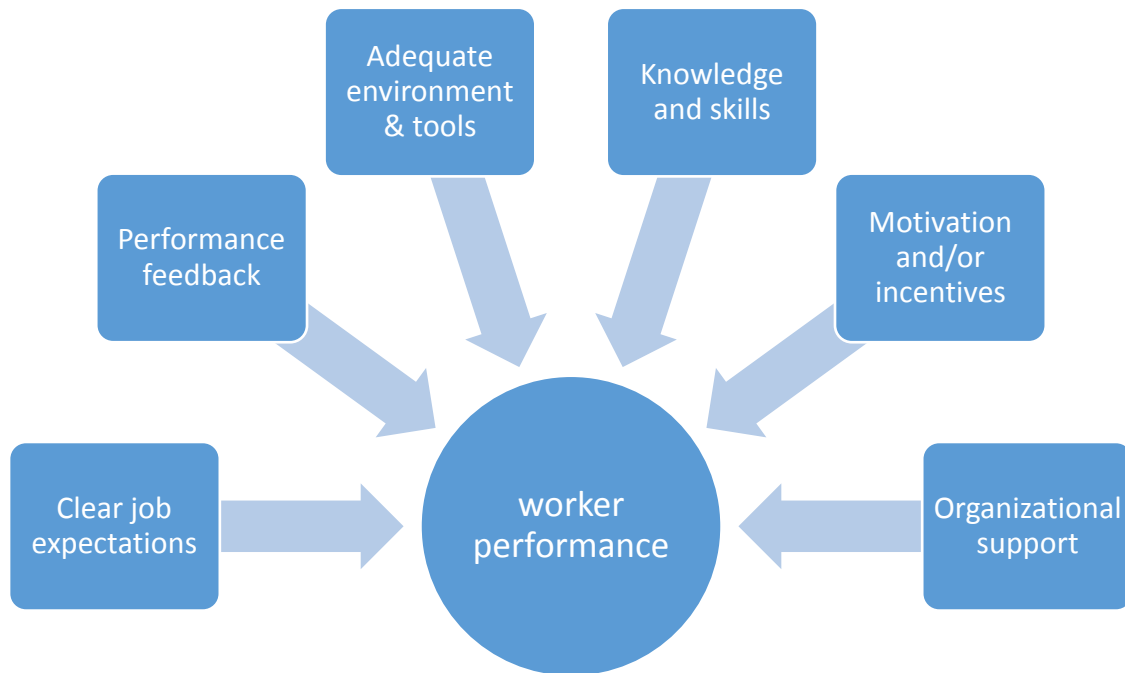


Figure 1. Framework for the Performance Factors and Provider Job Performance (Adapted from Fort & Voltero, 2004).

This model did not consider leadership as a separate factor/category which impacts the performance. However, it was considered in the context of the work environment which is composed of organizational culture and the climate. According to the authors, leadership and management practices operate within the organization's culture and climate and influence performance through employee satisfaction and motivation. In addition, many factors other than leadership influence satisfaction and motivation, thus the performance indirectly. Therefore, the inter-relationship of leadership, satisfaction, motivation, and performance is complex.

Factors Affecting the Performance of Health Care Workers

Factors affecting the performance of PHM are the dependent variable of this study. The health workers providing MCH care to communities differ considerably from one country to another regarding their recruitment procedure, level of training, duties, and remuneration. Therefore, the factors affecting their performance differ considerably from one country to another.

A study of "Factors related to the performance of midwives in the antenatal care service in Papua Province of Indonesia" considered factors such as age, employee status, years of service, knowledge, attitudes, motivation, facilities, reward, and managerial skills (Inyomusi et al., 2019). Awases et al. (2013) analysed the factors affecting the performance of professional nurses in

Namibia. They identified that many factors related to knowledge and skills, performance appraisal, motivation, work environment, staff development programs, organizational mission and goals, commitment, and satisfaction, and leadership either positively or negatively influence the performance of the selected staff category.

According to the above-mentioned studies, it is apparent that most of the factors considered by researchers for evaluation when assessing the performance of health workers can be categorized into terms of knowledge, motivation, job satisfaction, performance appraisal, supervision, and leadership. The conclusions of different studies demonstrate the varying impact of these factors on health workers' performance. Inyomusi, et al. (2019) in their study done in Papua Province of Indonesia found out that PHM's performance was significantly associated with motivation. In addition, they showed that there was no relationship between knowledge and performance of midwives in ANC services. Awases et al. (2013) identified that an absence of a formal performance appraisal system and the lack of recognition of good employees affect the performance of professional nurses in Namibia negatively. They also concluded that leadership and management styles of the managers in the organization have a significant effect on the performance outcomes of the subordinate employees. Alkaseh and Kweik (2009) identified a high level of salary and availability of transportation as the highest socio-demographic factors that positively influence midwifery performance in Palestine. Both factors can be regarded as factors related to employee motivation as well as satisfaction. The effect of supervision by the main supervisor of the maternal health care providers was assessed by Fort and Voltero (2004) in Armenia. They concluded that supervision in the last six months has a significant relationship to the performance of nurses and midwives in two regions of the country. Further, they identified that knowledge, performance appraisal, satisfaction, and factors related to motivation (non-monetary incentives, having the necessary equipment, instruments, and supplies) had a significant relationship to performance.

Extensive research has been done to explore the relationship between the different perspectives of leadership and the performance of health workers. There is limited research on exploring this relationship among health workers in resource-limited settings like Sri Lanka. Research conducted in Uganda to assess the relationship between leadership style and health worker performance has evaluated the effect of leadership on different performance factors such as motivation, job satisfaction, and teamwork (Musinguzi et al., 2018). The study confirmed that staff motivation, job satisfaction, and teamwork positively correlated with transformational leadership whereas only staff job satisfaction and teamwork positively correlated with transactional leadership. The findings provide good evidence that leadership impacts performance via factors like motivation and satisfaction. Another research conducted in Indonesia by Arifin et al. (2018) confirmed the finding that the leadership style has not directly affected the performance of midwives. Findings of another study conducted among health sector employees in Kenya showed that leadership influences the relationship between employee participation and organizational performance (Kuria et al 2016). All these findings point out that leadership influences the performance of employees indirectly through other factors such as motivation, job satisfaction, and supervision.

The maternal care performances of PHM’s were reviewed in a province of Sri Lanka by Gunathunga and Fernando (2003). During that study, they assessed knowledge, competency, and work-related attitudes from the participants' perspectives. They extracted information related to performance of midwives by observation and using an interviewer-administered questionnaire. They recommended that the methodology used in that study could be adopted with appropriate modification for the evaluation of PHMs in different settings. Further studies done in this regard within the country could not be found during the literature survey.

Paying attention to the organization of the Sri Lankan health system and taking into consideration of findings of the studies done both nationally and internationally, motivation and job satisfaction of the midwife and supervision of the midwife by the immediate supervisor are considered as performance factors for the present study. In addition to the performance factors, leadership was selected as the variable that moderates the effects of motivation, job satisfaction, and supervision on the performance of the midwives. Input from the RDHS and MOHs of the Nuwara Eliya district were also helpful in selecting relevant variables for the study.

According to the RDHS of Nuwara Eliya district, PHM’s performance appraisal has become a routine process of approval of documents. Since effective performance appraisal is not taking place, it was not considered as a performance variable for the study. Assessment of knowledge of PHM needs a comprehensive approach covering employee, organizational, and service receiver aspects. The pandemic situation in the country, resources, and time constraints prevented the investigator from looking into the knowledge factor in this research.

Conceptual Framework

The conceptual framework developed based on the findings of the literature review is as follows.

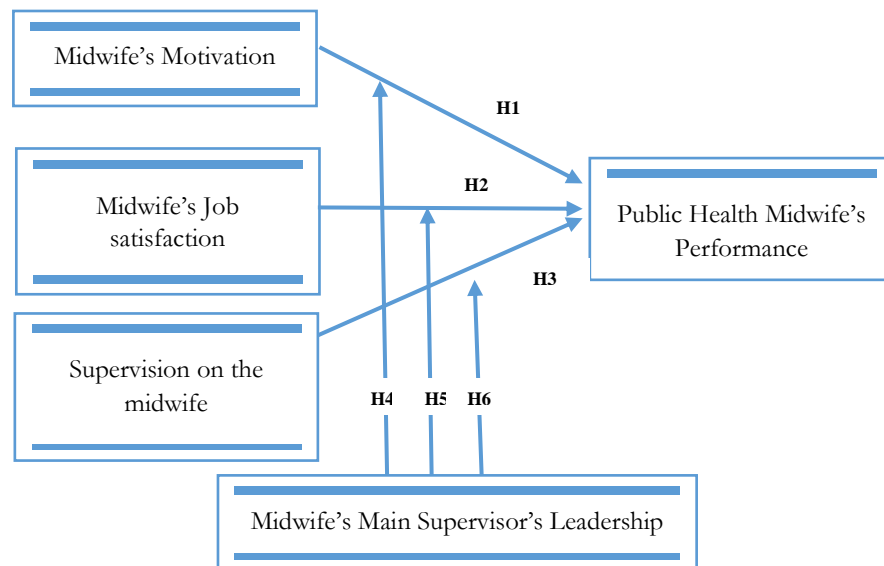


Figure 2. Conceptual Framework

Hypothesis Development

H1: Employee motivation does not impact the performance of PHMs in Nuwara Eliya District

Inyomusi et al. (2019) in their study done in Papua Province of Indonesia found out that PHM's performance was significantly associated with motivation.

H2: Job satisfaction does not impact the performance of PHMs in the Nuwara Eliya District.

The effect of employee satisfaction on performance was also confirmed by Fort and Voltero (2004) in Armenia.

H3: Employee supervision does not impact the performance of PHMs in the Nuwara Eliya District.

The effect of supervision by the main supervisor of the maternal health care providers was assessed by Fort and Voltero (2004) in Armenia. They concluded that supervision in the last six months has a significant relationship to the performance nurse and midwives in two regions of the country.

H4: Leadership does not moderate the relationship between motivation and the performance of PHMs in the Nuwara Eliya District.

A study by Musinguzi et al. (2018) confirmed that staff motivation was positively correlated with transformational leadership style.

H5: Leadership does not moderate the relationship between motivation and the performance of PHMs in the Nuwara Eliya District.

Musinguzi et al. (2018) in their study also confirmed that both transformational and transactional leadership styles positively influence the satisfaction of the employees.

H6: Leadership does not moderate the relationship between employee supervision and the performance of PHMs in the Nuwara Eliya District.

Research conducted in Indonesia by Arifin et al. (2018) demonstrates the effect of leadership on the supervision of employees.

Research Methodology

Research Design

A descriptive cross-sectional study was conducted in the Regional Director of Health Services (RDHS) area in the Nuwara Eliya district for a period of three months from July 2021 to September 2021.

Study Population

The study population was all the Public Health Midwives of 13 MOH areas in the Nuwara Eliya District.

Sample and Sample Size

The sample size was determined using Krejcie and Morgan table (Hakim, 2021). Since 308 PHMs are employed in the Nuwara Eliya district, the calculated sample size was 169.

Sampling Technique

A cluster sampling of all 13 MOH areas was planned originally. This was not possible due to the restrictions imposed to contain the COVID-19 pandemic. Therefore, a convenient sample of 169 PHMs was collected from the total population of 309 midwives.

Study Instrument

The study instrument was a self-administered questionnaire, developed by the principal investigator. The questions were adopted from three validated questionnaires used in similar studies (Fort & Voltero, 2005; Awases et al., 2013). A pre-test was conducted for the self-administered questionnaire among 10 PHMs in a MOH area in the Matale district.

Data Analysis

IBM SPSS software version 15.0 was used for the preparation of the database and data analysis. Descriptive statistics such as mean, standard deviation, correlations, and coefficients were computed on all variables and frequency distributions were developed to compare the demographics. Correlation analysis and hierarchical regression analysis were performed to understand the relationship among independent variables, moderator variable, and dependent variable.

Ethical Considerations

The study did not cause any risk to the participant. Informed written consent was obtained from all the study participants before the study. Anonymity and confidentiality were maintained in all stages, of this study including presentation and publication and it will continue to be maintained in the future as well.

Data Analysis and Findings

Descriptive Analysis and Presentation

Demographic factors were used to explain the nature of the participants who participated in the study.

Age of PHMs

According to the responses, the majority of PHMs were in the age range of 21 years to 29 years which was 43.2% of the respondents (Figure 3).

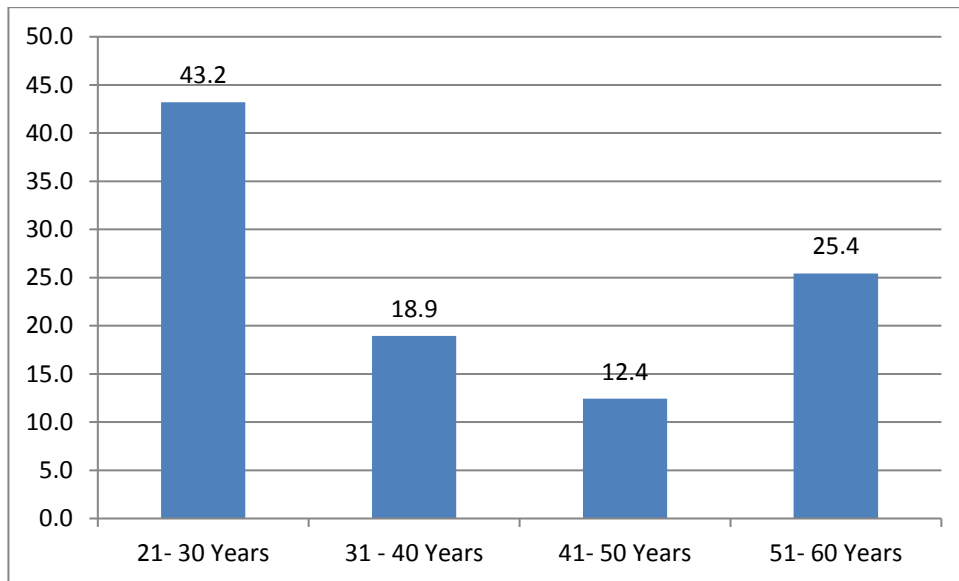


Figure 3. Age of PHMs

Marital Status of PHMs

According to Figure 4, the majority of the participants were married (75.1 %).

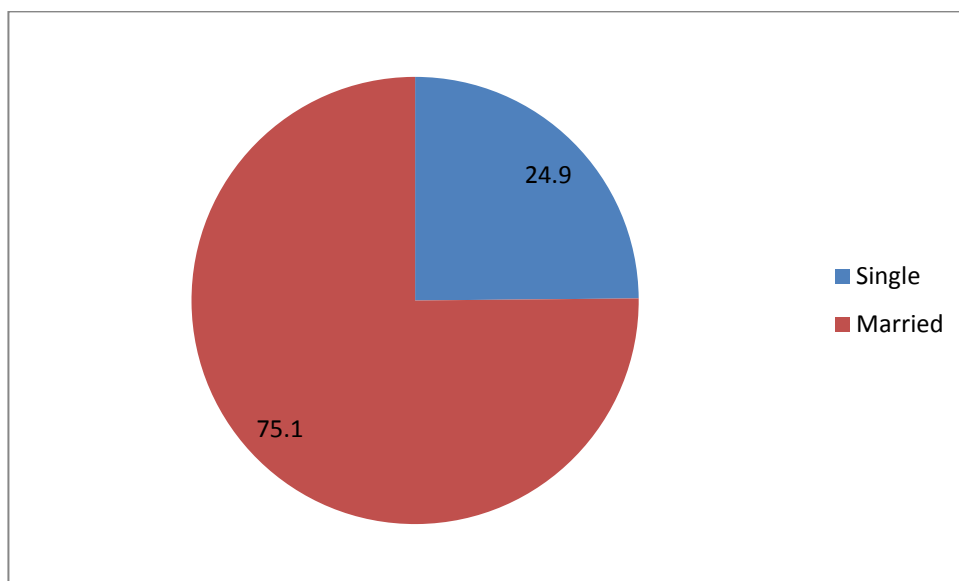


Figure 4. Marital status of PHMs

Number of Children

According to Figure 5, the majority of the PHMs did not have children (43.8 %).

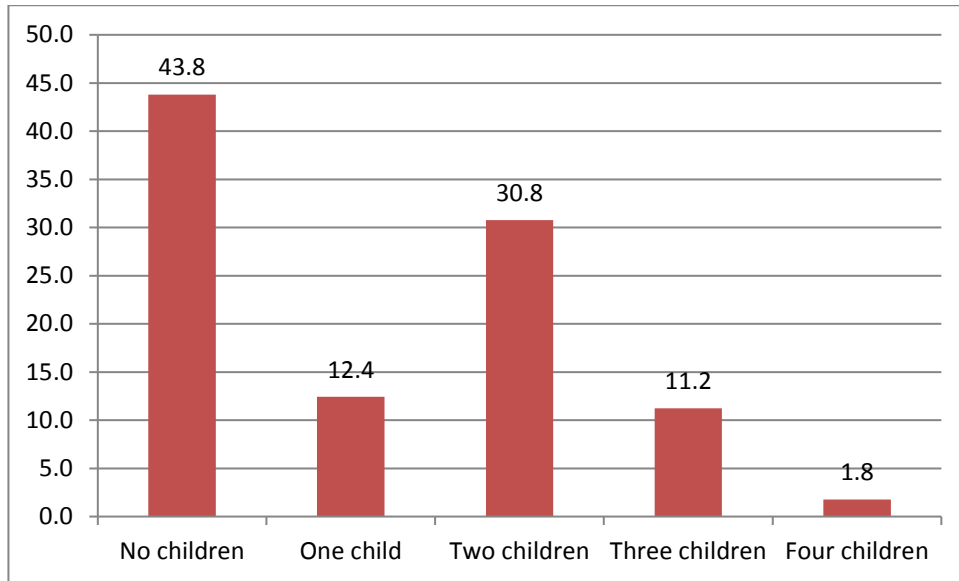


Figure 5. Number of Children

Work Experience of PHMs

According to Figure 6, 46.7% of the midwives had less than 5 years of service experience.

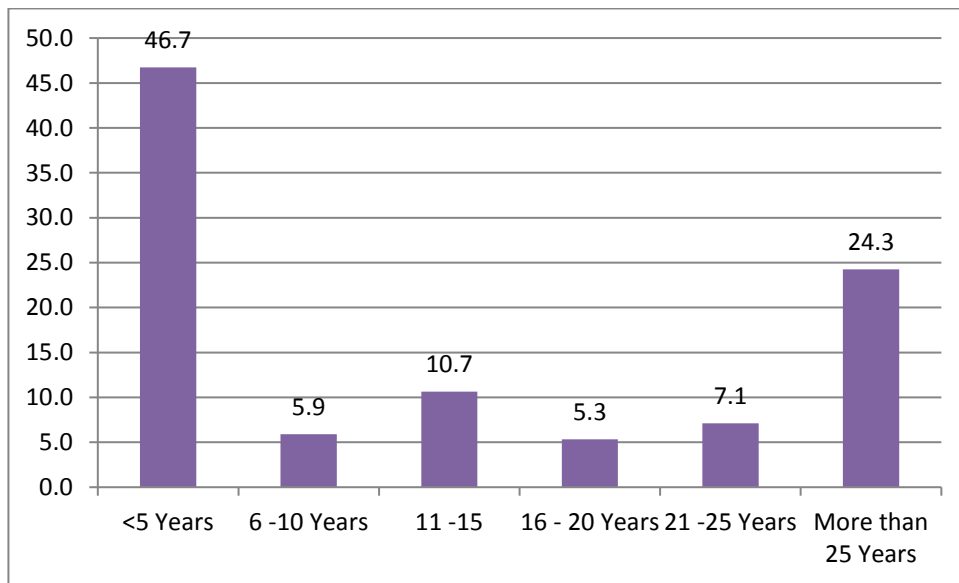


Figure 6. Work Experience of PHMs

Reliability and Validity of the Questions

Table 4 explains the Reliability test result which was measured using Cronbach’s alpha value.

Table 1. Results of Internal Consistency (Cronbach Alpha)

Variable Type	Variable Name	Cronbach’s	No.
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		alpha	Questions
Independent Variable	Motivation	0.593	5
	Job satisfaction	0.738	5
	Supervision	0.885	5
Moderator Variable	Leadership	0.891	5
	Task Performance	0.912	5
Dependent Variable	Contextual Performance	0.813	8
	Counterproductive Work	0.870	5
	Behaviour		

Note: Cronbach's alpha values were greater than the minimum criterion for reliability (0.5), all questions could be used to measure relevant variables of the study.

Descriptive Analysis of Response for Independent, Moderator, and Dependent Variable

Descriptive statistics of three independent variables and the composite independent variable as a percentage are described in the table below.

Table 2. Descriptive Statistics of Three Independent Variables and the Composite Independent Variable as a Percentage

Variable	Mean	SD
Total Motivation	63.59	11.11
Total Job Satisfaction	80.40	11.90
Total Supervision	72.09	12.79
Total Composite Independent Variable	72.03	8.35

Source: Authors' estimation

Descriptive Statistics of the Moderator Variable

Descriptive statistics of the moderator variable as a percentage are described in table 3.

Table 3. Descriptive Statistics of the Moderator Variable as a Percentage

Variable	Mean	SD
Total Leadership Percentage	82.57	11.85

Source: Authors' estimation

Descriptive Statistics of the Dependent Variable

Descriptive statistics of the dependent variable as a percentage are described in the table below.

Table 4. Descriptive Statistics of the Dependent Variable as a Percentage

Variable	Mean	SD
Total Task performance	72.82	15.02
Total Contextual performance	64.21	13.21
Total Counterproductive work behaviour	90.46	13.50

Total Work performance percentage	73.89	9.80
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Source: Authors' estimation

Mathematical Analysis for Hypothesis Testing

Correlation analysis of the dependent and independent variable: Pearson Correlation was calculated to understand and measure the correlation between independent variables and the dependent variable.

Table 5. Results of Pearson Correlation between Dependent and Independent Variables

Variable	Method	Mean Motivation	Mean Job satisfaction	Mean Supervision
Total Work Performance	Pearson Correlation	.159*	.701**	.163*
	Sig. (2-tailed)	.039	.000	.034
	N	169	169	169

Notes: **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Testing of hypothesis 1: Hypothesis 1 states that employee motivation does not impact the performance of PHMs in the Nuwara Eliya District. Since the probability value of the Pearson correlation between mean motivation and total work performance is 0.039 (<0.5), null hypothesis can be rejected at 95% significant level.

Testing of hypothesis 2: Hypothesis 2 states that job satisfaction does not impact the performance of PHMs in the Nuwara Eliya District. Since the probability value of the Pearson correlation between mean job satisfaction and total work performance is 0.000 (<0.5), null hypothesis can be rejected at 95% significant level.

Testing of hypothesis 3: Hypothesis 2 states that employee supervision does not impact the performance of PHMs in the Nuwara Eliya District. Since the probability value of the Pearson correlation between mean supervision and total work performance is 0.034 (<0.5), null hypothesis can be rejected at 95% significant level.

Regression Analysis

Multiple Linear Regression analysis was carried out to measure the impact of the independent variables and moderator variable on the dependent variable (Table 6).

Analysis between Independent Variables and Dependent Variables

Table 6. Model Summary for Independent Variables versus Dependent Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.724	.524	.516	1.0077

Notes: a. Predictors: (Constant), Mean Motivation, Mean Job Satisfaction, Mean Supervision

b. Dependent Variable.

Source: Authors' estimation

Based on the above table, R square = 0.524 refers to that predictor of the independent variables (Motivation, Job Satisfaction, and Supervision) of the research model interprets or explains 52.4% of the variance in employee performance (dependent variable).

Table 7. Coefficient table for Independent Variables versus Dependent Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.926	.676		7.286	.000
1 Mean Motivation	-.504	.156	-.194	-3.226	.002
Mean Job Satisfaction	1.893	.147	.779	12.869	.000
Mean Supervision	.123	.123	.054	.997	.320

Notes: a. Dependent Variable: DV Total Work Performance

Source: Authors' estimation

Standardized Beta Coefficients values indicate that motivation had a negative linear correlation with performance and job satisfaction had a positive linear correlation with performance. In addition, the correlation between supervision and performance demonstrates a nonlinear relationship ($P > 0.05$).

Analysis between Moderator Variable and Dependent Variable

Table 8. Model summary for Moderator Variable versus Dependent Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.441	.194	.189	1.3034

a. Predictors: (Constant) b. Dependent Variable: Work performance

Source: Authors' estimation

Based on the Model Summary table above, R square = 0.194 refers to the moderating variable (Leadership) of the research model interprets or explains 19.4% of the variance in the dependent variable (performance), while the remaining ratio of 82.6% can be interpreted due to other factors.

Table 9. Coefficient Table for Moderator Variable versus Dependent Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	6.928	.708	-	9.787	.000
Mean Leadership	1.077	.170	.441	6.347	.000

Notes: Dependent Variable: DV Total Work Performance

Source: Authors' estimation

Standardized Beta Coefficient value (0.441) indicates that Leadership had a positive linear correlation with performance ($P < 0.05$).

Analysis of Independent Variables and Moderator Variable versus Dependent Variable

Table 10. Results of Model Summary for Independent Variable and Moderator Variable versus Dependent Variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.726	.528	.516	1.0071

Notes: a. Predictors: (Constant), Mean leadership, Mean motivation, Mean job satisfaction, Mean supervision. b. Dependent Variable: Work performance.

Source: Authors' estimation

When regression analysis was done considering only the independent variables versus dependent variable, 52.4% of the dependent variable variance was explained by them. Adding moderator variable (leadership) to the regression analysis improves the contribution to the performance (52.8%) by a significant 0.04%.

Table 11. Results of Coefficients for Independent Variable and Moderator Variable versus Dependent Variable

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.098	.694		7.349	.000
1 Mean Motivation	-.432	.170	-.166	-2.543	.012
Mean Job Satisfaction	2.037	.197	.838	10.327	.000
Mean Supervision	.118	.123	.052	.959	.339
M Mean Leadership	-.234	.214	-.096	-1.094	.275

Notes: a. Dependent Variable: DV Total Work Performance

Source: Authors' estimation

Standardized Beta Coefficients values indicate that motivation had a negative linear correlation with performance and job satisfaction had a positive linear correlation with performance. In addition, this indicates that Supervision and Leadership had a non-linear correlation with performance ($P > 0.05$).

Based on the coefficient analysis above, the moderator variable which showed significance with the dependent variable (Table 9) now shows insignificance and the standard regression weights (β coefficients) value has reduced from 0.441 to -0.096.

Analysis of Independent Variable, Moderator Variable, and Interaction Variable versus Dependent Variable

A new variable called the interaction variable was created for this analysis by multiplying the independent variable with the moderator variable.

Table 12: Results of Model Summary for Independent Variable, Moderator Variable, and Interaction Variable versus Dependent Variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.726	.528	.516	1.0071
2	.729	.531	.517	1.0061

Notes: a. Predictors: (Constant), Mean leadership, Mean motivation, Mean job satisfaction, Interaction variable. b. Dependent Variable: Work performance

Source: Authors' estimation

R square in model 1 (0.528) refers to that independent variable (motivation, job satisfaction and supervision) and moderating variable (Leadership) of the research model together interprets or explains 52.8% of the variance in the dependent variable (performance). When regression analysis was done considering the interaction variable with independent variables and moderator variable (model 2) R square value increases by 0.001 and the contribution to the dependent variable improves by 0.03%. According to the ANOVA table below described, the improvement is significant.

Table 11. Results of ANOVA for Independent Variable, Moderator Variable, and Interaction Variable versus Dependent Variable

Model	Item	Sum of Squares	df	Mean Square	F	Sig
1	Regression	185.806	4	46.451	45.798	.000 ^a
	Residual	166.340	164	1.014		
	Total	352.146	168			
	Regression	187.159	5	37.432	36.981	.000 ^b
	Residual	164.987	163	1.012		
	Total	352.146	168			

Notes: a. Predictors: (Constant), M Mean Leadership, Mean Motivation, Mean Job Satisfaction, Mean Supervision. b. Predictors: (Constant), M Mean leadership, Mean Motivation, Mean Job Satisfaction, Mean Supervision, Interaction X. c. Dependent Variable: DV Total Work Performance.

Source: Authors' estimation

Based on the ANOVA table for the linear regression in model 1 ($F = 45.798$, $p=0.000$), there is a significant relationship between the independent variable (motivation, job satisfaction and supervision) & moderator variable together with the dependent variable performance. In addition, when model 2 is considered ($F = 36.981$, $p=0.000$), there is a significant relationship between the independent variable (motivation, job satisfaction, and supervision), moderator variable, and interaction variable with the dependent variable (performance).

Table 13. Results of Coefficients for Independent Variables, Moderator Variable, and Interaction Variable versus Dependent Variable

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

	(Constant)	5.098	.694		7.349	.000
	Mean Motivation	-.432	.170	-.166	-2.543	.012
1	Mean Job Satisfaction	2.037	.197	.838	10.327	.000
	Mean Supervision	.118	.123	.052	.959	.339
	M Mean Leadership	-.234	.21	-.096	-1.094	.275
	(Constant)	.086	4.491		.019	.985
	Mean Motivation	.028	.432	.011	.064	.949
2	Mean Job Satisfaction	2.508	.452	1.031	5.544	.000
	Mean Supervision	.570	.410	.252	1.392	.166
	M Mean Leadership	1.056	1.136	.432	.930	.354
	Interaction	-.117	.101	-.850	-1.156	.249

Notes: Dependent Variable: DV Total Work Performance

Source: Authors' estimation

Based on the coefficient analysis above, the independent variables 'job satisfaction' showed significance with the dependent variable in both models, but the standard regression weights (β coefficients) values have improved from .838 to 1.031.

The beta coefficient for the moderator variable is not significant in both models. The beta coefficient for the interaction variable too is not significant in model 2.

Analysis of Moderating Effect of Leadership on the Relationship between Independent Variables and Dependent Variable

Testing of Hypothesis 4, 5, and 6: Hypothesis 4 states that leadership does not moderate the relationship between motivation and the performance of PHMs in the Nuwara Eliya District.

Hypothesis 5 states that leadership does not moderate the relationship between motivation and the performance of PHMs in the Nuwara Eliya District.

Hypothesis 6 states that leadership does not moderate the relationship between employee supervision and the performance of PHMs in the Nuwara Eliya District.

Since there was no significant moderating effect of leadership on performance null hypotheses 4, 5, and 6 defined under methodology can be accepted at 95% significant level.

Conclusion

The study has proven that independent variables (motivation, job satisfaction, and supervision) have a significant effect on the dependent variable 'performance'. Therefore, null hypotheses 1, 2, and 3 were rejected. The study also proved that leadership has no moderating effect on the relationship between independent variables and the dependent variable. Therefore, null hypotheses 4, 5, and 6 were accepted.

Discussion and Implications

All three independent variables, namely motivation, job satisfaction, and supervision had a statistically significant association with the performance of the PHMs in the Nuwara Eliya district. Both job satisfaction and supervision had a positive linear correlation with performance while motivation had a negative linear correlation with performance. A positive effect of job satisfaction and supervision on performance was well demonstrated by other researchers in different settings (Alkassseh & Kweik, 2009; Tatogo et al., 2021). However, the negative effect of motivation on performance is contradictory to the findings of the same researchers. In the study, the assessment of motivation was based only on the PHMs' responses to the self-administered questionnaire. This factor needs to be considered when interpreting the results. In addition, further research to assess the effect of organizational factors on the performance of PHMs in low-resource settings like Nuwara Eliya is warranted.

Moderating effects of leadership on the relationship between independent variables and the dependent variable was not significant. This finding too is contradictory to the findings of other researchers. A recent study done in Uganda demonstrates the moderating effect of transactional and transformational leadership on job satisfaction, motivation, and supervision (Musinguzi et al., 2018). This research specifically assessed the leadership of the MOH from the perspective of the PHMs. Since there are 13 MOHs in the district, the perspective of the PHMs on their leader would be different. In addition, a convenient sample of PHMs may not have been a representative sample to infer conclusions. Despite all these drawbacks of the study, district and provincial health authorities should pay attention to the issues faced by the MOHs in the district when leading public health teams.

43.2% (n=73) of the respondents were between 21 - 30 years old. Most of the respondents (75.1 %, n=127) were married. 43.8 %of the PHMs didn't have children. 46.7% of the midwives had less than 5 years of service experience while 24.3% of PHMs had more than 25 years of work experience. All these findings indicate that the midwifery population of the Nuwara Eliya district is relatively younger and free of the burden of looking after their own children. This would positively affect delivering their services under difficult geographical and sociocultural circumstances. In addition, they are relatively less experienced, and it could affect service delivery negatively. A similar effect of age and the years of service on performance were demonstrated by many other researchers who conducted studies in low-resource settings (Inyomusi et al., 2019).

Recommendations

The study findings revealed that job satisfaction had a high degree of positive correlation with the performance of PHMs in the Nuwara Eliya district. Regional health authorities must always ensure the job satisfaction of the grass-root level staff to obtain maximum service from them.

The motivation shows a negative correlation with the performance which was contrary to the expected finding based on the literature. This factor needs to be further studied. PHM's main supervisor's (MOH) leadership did not have a significant effect on moderating the relationship between motivation, job satisfaction, and supervision with performance. This fact also needs to be further investigated since the leadership role of the MOH may be deficient.

Apart from making recommendations to carry out extended research related to this particular area from a pragmatic sense, the senior officials at the Ministry of Health should take appropriate policy-level decisions to obtain an effective and efficient service from the PHMs who are considered the "front line staff" in the provision of maternal and child health care in the country. Having regular meetings or discussions in identifying their issues such as work demand, inadequate resources, lack of proper working facilities, etc., and finding solutions would help these staff members significantly, to provide optimum service.

Areas for Further Research

It should be mentioned, that though the socio-demographic characteristics of the PHMs were analysed based on age, marital status, number of children, and work experience, the author did not pursue a detailed study in identifying the impact of these specific aspects on the performance. Further research in this regard would provide insight to identify issues in service provision from a different perspective.

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