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# Effect of Occupational Health and Safety Factors on Performance of Nurses in Public Health Facilities in Mbarara City, Uganda

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## Abstract

This study sought to examine the physical health and safety factors affecting performance of nurses in public health facilities in Mbarara City, Uganda and to establish the effect of competence programs towards the performance of nurses in public health facilities in Mbarara City, Uganda. By adopting a cross sectional design and a quantitative approach, this study was guided by the Theories of Work Adjustment and Herzberg's Two Factor Theory. A sample of 188 respondents including 152 nurses and 36 doctors was selected as respondents. With the help of self-administered questionnaires, data was obtained, cleaned and analyzed using SPSS software whose results were imported to Microsoft Word and presented in tables as descriptive and inferential statistics. It was revealed from the study findings that physical health and safety factors such as hospital infrastructure, lighting and ventilation were discovered to be significant influencing factors towards nurses' performance just as competence programs such as motivation and teamwork do. It was concluded from the study that nurses' performance can be improved by improving hospital infrastructure and enhancing competence programs such as motivation and teamwork. Occupational health and safety (OHS) factors influence nurses' performance. Just as competence programs such as motivation and teamwork do.

**Keywords:** *Physical Health and Safety Factors, Competence Management programmes,Work environment, Performance of nurses.*

### 1.1 Background to the Study

Physical health and safety in the workplace refers to the conditions and practices that prevent harm, injuries, and accidents at work (Mayo et al., 2018). It involves identifying and mitigating potential hazards such as falls, machinery accidents, exposure to hazardous substances and radiation, as well as ergonomic issues, to safeguard employee well-being (Tadesse & Admassu, 2006). Occupational physical health and safety factors encompass exposure to chemical, physical, and biological agents, along with inadequate control of risks like high dust levels and excessive noise (Nurhayati

et al., 2022; Tulchinsky et al., 2023). This also includes monitoring facility conditions, ensuring optimal temperature and ventilation, adequate lighting, proper treatment facilities, and safe use of tools to prevent harm to nurses (Mayo et al., 2018). Essential safety protocols—such as wearing personal protective equipment (PPE), conducting regular equipment inspections, implementing emergency response plans, and providing safety training—are fundamental for sustaining workplace safety (ILO, 2016; Lou, 2022).

Competence, as defined by the Health and Safety Executive (2023), refers to an individual's ability to apply their training, skills, experience, and knowledge to perform tasks safely. Competence programs encompass all initiatives and arrangements that ensure workers are trained and capable of fulfilling the safety and health aspects of their roles (ILO, 2023). Such programs may include mentorship, welfare enhancement, employee engagement, mutual respect, teamwork, and motivational support, all of which contribute to a safer and more productive workplace.

Empirical studies consistently show that physical health and safety factors significantly influence nursing performance. Ullah et al. (2023) found that inadequate patient bed space, insufficient work areas, equipment shortages, and poor tool conditions hinder nurse productivity, though their focus on ICU settings limits generalization. Lin et al. (2018) highlighted that neglecting personal physical activity diminishes both nurses' health and public service quality, while Gumasing et al. (2020) and Monera et al. (2024) reported that high noise, poor lighting, excessive temperatures, and substandard ergonomics increase occupational risks and reduce efficiency. Research in the United States and UAE similarly links poor ergonomic design, heavy workloads, and inadequate infrastructure to musculoskeletal injuries, absenteeism, and reduced patient safety (Kim, 2017; Rogers et al., 2013).

In parallel, competence development initiatives have been shown to enhance clinical performance. Yasir et al. (2022) reported that in-service training, mentorship, and adherence to performance standards improved nurses' competencies, while Sari et al. (2021) found that targeted skills programs enhanced role performance in Indonesian hospitals. Quasi-experimental studies by Parveen et al. (2023) and Hagrass et al. (2023) demonstrated that competency-based training and mentorship programs significantly improved nursing interns' and mentors' performance, respectively, though contextual differences may affect transferability to Uganda. Additional research from Egypt, Indonesia, and Iran affirms that practice-based training, structured mentorship, and collaborative learning foster skill application, reduce stress, and enhance care quality (Elhabashy et al., 2024; Wijayanti et al., 2025; Arab & Saeedi, 2024). Collectively, the literature suggests that optimal nurse performance depends on the combined effect of safe and supportive physical work environments and robust competence development programs.

### 1.2 Statement of The Problem

Nurses play a crucial and multifaceted role in public health facilities, ensuring the smooth functioning of healthcare delivery and providing essential care to patients (Alhagbaker et al., 2024). The performance of nurses is pivotal to improving patient outcomes as it influences patient safety, satisfaction, recovery, and even mortality rates in public health facilities (Depesa et al., 2023). The Ministry of Health in Uganda has implemented several initiatives to improve the performance of nurses in public health facilities including promoting regular training and development programs, encouraging nurses to upgrade nursing qualifications and education standards, improving working conditions by improving infrastructure development, motivating

staff through improved remuneration packages, conducting regular performance evaluations among others (Ministry of Health, 2015, 2018a; MoH-U, 2015).

Despite the pivotal role of nurses and efforts put in place to improve nurse performance among public health facilities, the performance of nurses in public health facilities in Mbarara City is suboptimal characterised by negligence, late coming, unreliability, use of abusive language and errors all of which contribute to low quality of care and negative patient outcomes. Many nurses lacked proficiency in critical areas such as patient assessment, safety checks, and emergency procedures like maintaining airways and using defibrillators which indicates significant deficiencies in task performance (Ministry of Health, 2022). Over 90% of the nurses do not attend to patients' needs in time and often disrespect, abuse and neglect patients which describe low task performance (Ministry of Health, 2022).

While prior literature tend to attribute low performance of nurses to deficiencies in individual capabilities, nurses' attitudes, unfavourable working environment, excessive workload, lack of adequate resources, teamwork issues, job stress, lack of incentives, staffing gaps, lack of supportive supervision, communication and leadership gaps (Daba et al., 2024; Ninsiima et al., 2023; Sari et al., 2019; Setebe & Kiwara, 2022; Yusrawati et al., 2024), the issue of occupational health and safety factors has received scanty research yet it is believed to affect nurses' ability to provide patient care and effectively undertake all procedures involved in the nursing process. This presents a knowledge gap, particularly in understanding how physical health and safety conditions, competence-building programs, work environment factors, and personal attributes affect nurse performance. Additionally, there exists a contextual gap in research focusing specifically on public health facilities in Mbarara City, Uganda, an area where nurse performance remains critically low, despite national interventions. Thus, by investigating the impact of occupational health and safety factors on nurses' performance in public health facilities in Mbarara City, Uganda, this study aimed to close these gaps.

### 1.3 Significance of the Study

For future researchers, it is useful for them to get a detailed understanding on the how occupational health and safety can be affecting an individual's performance of nurses in their workplace. Meanwhile, future researchers are encouraged to use the results of this study as their reference.

This research may be especially beneficial for the hospitals as it provides further understanding on the importance of job performance and direction on how the hospitals could improve the employees' job performance by enhancing the occupational health and safety. Therefore, hospital managers could follow the information and guidelines provided to boost employees' job satisfaction. It is known that the issue of employee performance is a challenge in almost all sectors. Furthermore, there is a correlation between various industries. As a result, this study can also be used as a guide for other hospitality establishments.

Furthermore, it is imperative that all industries understand the significance of employee performance and how to enhance it. In order to prevent the potential repercussions of ignoring it, this research enables them to have a thorough awareness of the significance of the link between two factors. Employee performance, job happiness, and service quality will all eventually increase when managers protect workers' occupational health and safety.

Based on reliable and focused data from the research study, this study will assist government agencies, hospital administrators, and policy makers in making well-informed decisions on

policies and practices. These policymakers can communicate with regional health sector organizations to offer potential solutions that could help guarantee better worker performance.

### 1.4 Scope and Delimitation of the Study

The research subjects were the nurses who have been employed at the hospital for more than two years and are permanent workers in public health facilities in Mbarara City, Uganda, and upgrading nursing students who are employed in public health facilities in Mbarara City, Uganda. However, nurses employed for less than two years and those nurses still under locum basis of employment at the hospital were excluded from the study. Nurses in the administration were also not considered because their work situation is different from the hospital inpatient care environment. The study was conducted between October 2024 and December 2025.

Nurses and a few supervisory doctors working in public health facilities were the unit of inquiry in the study. Other healthcare professionals such as clinical officers, midwives, laboratory technicians and administrators were not considered in the study, yet they could also possess some knowledge on physical health and safety factors and nurses' performance.

The study focused on how Nurses' performance could be affected by occupational health and safety (OHS) factors particularly physical health and safety conditions, competence programs, work environment factors and personal attributes. Hence, other variables that could potentially influence nurse performance such as leadership styles, organizational culture, or national health policy were excluded.

## 2.0 Theoretical Framework

The Theory of Work Adjustment (TWA) guided this study. Developed by Dawis et al. (1968), this theory explains how individuals interact with their work environments to influence job satisfaction and performance (Dawis et al., 1968). Lofquist & Dawis (1984) defines work adjustment as the process through which an individual establishes and preserves alignment of his/her job duties with the demands and dynamics of the workplace (Lofquist & Dawis, 1984). The theory emphasizes satisfaction as one key aspect referring to the degree to which the work environment aligns with the employee's needs and preferences (Dawes, 1994). The theory also emphasizes satisfactoriness as another key aspect referring to the degree to which the employee meets the expectations and demands of the organization (Dawes, 1994).

One of the suggestions of this theory is that employees are more likely to experience satisfaction where adequate safety, physical well-being, and emotional security are provided within the work environment (Donley, 2021). This satisfaction in turn improves their motivation, commitment and overall job performance (Aksoylu & İncedağ, 2021). Equally, a discrepancy such as being exposed to unsafe working conditions could be one of the determinants of job dissatisfaction, stress, burnout and performance decline (Mustafa et al., 2022).

The use of TWA in this study offers a thorough framework for comprehending how nurses' work behavior and performance are impacted by the occupational health and safety conditions in public health institutions (Arsat et al., 2022; Moloney et al., 2020). It underlines the importance of environmental fit particularly safety as a determinant of job effectiveness (Wille et al., 2012). By focusing on the alignment between nurses' expectations for health and safety and the realities within their work settings, the theory offers understanding into the strategies for improving performance outcomes in the healthcare sector (Arsat et al., 2022; Moloney et al., 2020).

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### 2.1 Conceptual Framework

The conceptual framework illustrates the hypothesized relationships between occupational health and safety dimensions and the performance of nurses in public health facilities. The independent variables comprise four key domains: physical health and safety factors, competence programmes, work environment, and personal factors. Physical health and safety factors encompass elements such as ergonomics, hospital conditions, ward design, temperature, lighting, radiation exposure, and adequacy of treatment facilities. Competence programmes focus on initiatives like mentorship, welfare support, inter-employee engagement, mutual respect, and teamwork, all aimed at enhancing professional capability. The work environment dimension emphasizes skilled communication, collaboration, staffing adequacy, recognition, leadership, and supervision, while personal factors account for individual attributes such as physical ability, psychological health, motivation, behavior, and workplace lifestyle.

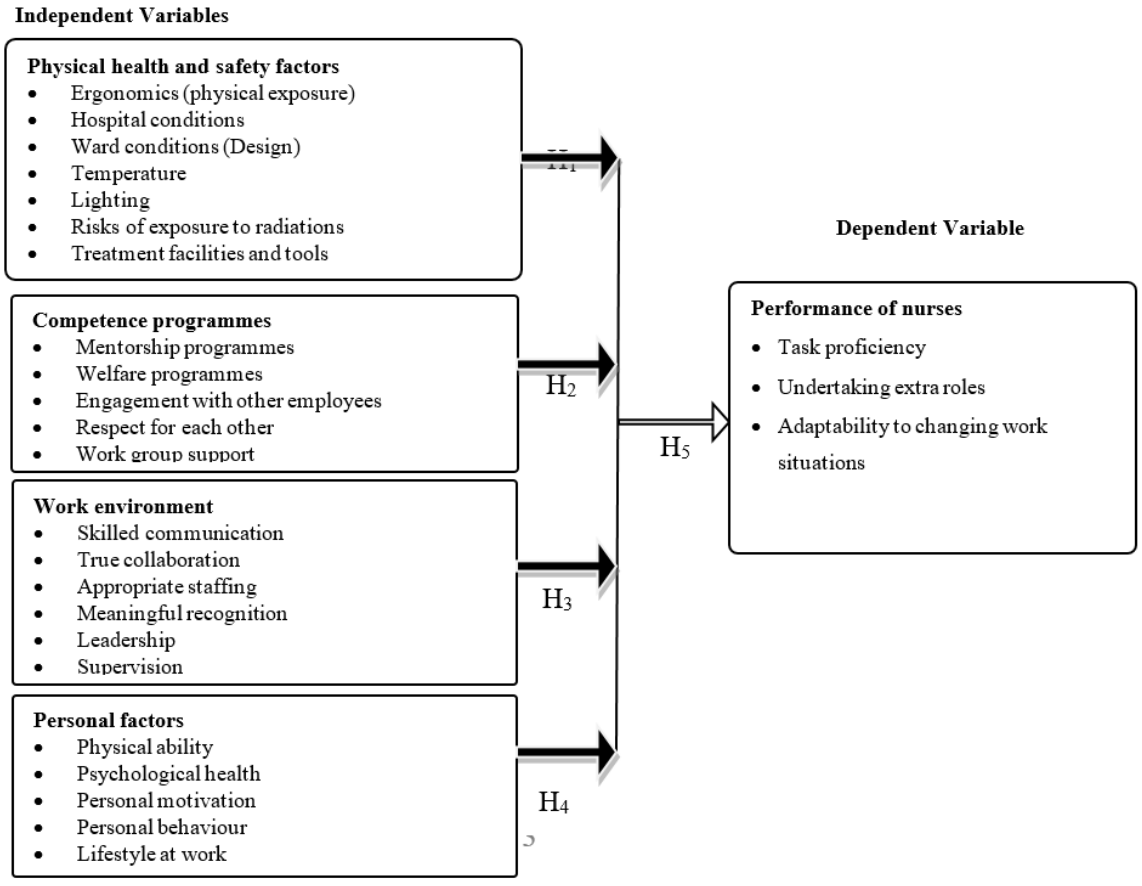


**Figure 1: Conceptual Framework**

The dependent variable, nurse performance, is operationalized through three dimensions: task proficiency, undertaking extra roles, and adaptability to changing work situations. The framework hypothesizes that each independent variable (H1–H4) exerts a direct influence on nurse

performance, while the overall occupational health and safety construct (H5) represents the combined effect of all four domains. This model is grounded in the understanding that both environmental and personal factors interact to shape nurses' ability to deliver quality care. By testing these relationships, the study seeks to identify the most influential determinants of nurse performance, providing empirical evidence to inform targeted interventions in the healthcare sector

## 3.0 Research Methodology

The study adopted a descriptive cross-sectional survey design, collecting data from nurses and doctors in Mbarara City's public health facilities at a single point in time. The target population comprised 250 nurses and 40 doctors, with a sample of 152 nurses and 36 doctors (total 188 respondents) selected using simple random sampling. Data were collected using structured self-administered questionnaires divided into three sections: demographic data, occupational health and safety factors (physical safety, competence programmes, work environment, and personal factors), and nurse performance (task proficiency, extra roles, adaptability). Content validity was confirmed through expert review, achieving a Content Validity Index (CVI) above 0.70 for all constructs. Construct validity was assessed via factor analysis using the Kaiser-Meyer-Olkin (KMO) measure ($\geq 0.6$) and Bartlett's Test of Sphericity ($p<0.05$). Reliability was established through a pilot study at Bwizibwera Health Centre IV, with Cronbach's alpha values ranging from 0.659 to 0.766 for subscales, and overall scales above 0.70, indicating acceptable internal consistency.

Ethical approval was obtained from Mbarara University Research Ethics Committee and the Uganda National Council of Science and Technology, with permissions granted by hospital administrators. A trained research assistant distributed and collected questionnaires, ensuring minimal disruption to hospital routines. Participation was voluntary, limited to nurses and doctors with over two years of service on a permanent basis, and included upgrading student nurses. Respondents had 30 minutes to complete questionnaires, with confidentiality, privacy, and informed consent upheld throughout. The study was guided by principles of responsible research, maintaining honesty, objectivity, and respect for participants, with strict measures to avoid falsification or unauthorized disclosure of information.

According to Frankel & Wallen (2009), raw data collected in the field is often hard to interpret, thus it needs to be cleaned, coded, entered into a computer system, and then analyzed. Based on the examination of the results, the researcher was able to make reasonable use of the data that was collected. A quantitative method was applied. The data was analyzed using the statistical software for social sciences (SPSS 23.0). Measures of central tendency like means and standard deviation were used to analyze quantitative data. Multiple linear regression was performed to examine the proposed association between occupational health and safety parameters and nurses' performance. The Regression model was:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_n X_n + \varepsilon_i \text{ for i} = 1, 2, 3, ...\text{n; n} = 4$$

Where $Y_i$ = Dependent variable, $x_i$ = predictor variables for each independent variables and $\varepsilon$ = error.

## 4.0 Findings

### 4.1 Occupational Health and Safety

A 5-point Likert scale was used to rate the responses, with 1 denoting "strongly disagree" and 5 denoting "strongly agree." The findings shed light on the state of occupational health and safety in public health facilities today.

The descriptive statistics in table 8 on physical health and safety factors suggest that the general working conditions in public health facilities in Mbarara City are perceived positively by nurses. The findings show high mean scores for hospital conditions (M=4.36), ward design (M=4.25), ventilation (M=4.21), lighting (M=4.16), and protection from radiation (M=4.15), indicating that nurses generally agree that the physical environment supports their well-being. However, the relatively lower mean for ergonomic design of workstations (M=3.24) suggests some dissatisfaction with how well the physical layout and tools align with nurses' physical capabilities. This implies that although the overall safety infrastructure is strong, improvements in workstation ergonomics may be necessary to enhance physical comfort and reduce fatigue or injury.

As shown in table 9 above, competence programmes showed moderate to high ratings, with indications of strength in motivation and teamwork but gaps in mentorship and stress support. Nurses reported strong agreement that they are motivated by intrinsic and extrinsic rewards (M=4.28) and that they work well in teams (M=4.26). However, the organization of regular mentorship programmes (M=3.56) and welfare programmes to manage stress and anxiety (M=3.61) received relatively lower ratings. These results suggest that while interpersonal collaboration and rewards systems are effective, the health facilities could benefit from more structured and consistent support for continuous learning, mentoring, and stress management to enhance performance further.

The findings in Table 9 also show that nurses expressed strong confidence in teamwork, leadership, and supervision, and that the work environment was generally seen as favorable. Collaboration among staff (M=4.41), authentic leadership (M=4.34), and the presence of supervision (M=4.31) received high ratings, reflecting a supportive and structured environment. However, communication (M=3.56) and staffing adequacy (M=3.95) scored lower, suggesting some gaps in information flow and possible concerns about nurse-to-patient ratios. This indicates that while leadership and team cohesion are strong, strategic efforts to improve communication systems and staff allocation could further enhance the quality of the work environment.

Table 9 results also show that personal factors were rated very positively, indicating that nurses in Mbarara City's public health facilities generally maintain good health, strong motivation, and responsible workplace behaviors. Items such as physical fitness (M=4.20), absence of mental health disturbances (M=4.25), intrinsic motivation (M=4.34), and alignment of workplace behavior with safety protocols (M=4.34) all scored highly. This implies that nurses not only possess the physical and psychological stability necessary for effective performance but also take personal responsibility for maintaining health and safety standards, which is a strong asset for public health service delivery.

**4.2 Descriptive Statistics on Nurse Performance**

A 5-point rating system was also used to assess the nurse performance indicators, which were divided into three categories: task performance, contextual performance, and adaptive performance.

Descriptive results on nurse performance as in table 9 indicate that nurses demonstrate high levels of task proficiency, contextual performance, and adaptive capacity. All indicators under task performance such as professionalism (M=4.28), planning (M=4.28), results orientation (M=4.33), and efficiency (M=4.30) were highly rated, confirming that nurses execute their responsibilities with competence and precision. Similarly, contextual performance measures such as taking initiative (M=4.40), handling extra responsibilities (M=4.36), and effective communication

(M=4.39) were also rated positively, suggesting a strong work ethic and commitment to teamwork beyond assigned tasks.

**Table 11: Descriptive Statistics on Nurse Performance**

| Descriptive Statistics on Nurse Performance | N | Min | Max | Mean | Std. Dev. |
|---|---|---|---|---|---|
| ***Task Proficiency (Task performance)*** | | | | | |
| Nurses perform their duties with high level of professionalism | 188 | 2 | 5 | 4.28 | .826 |
| Nurses plan their work well so that it is done on time | 188 | 2 | 5 | 4.28 | .669 |
| Nurses keep in mind the results that they have to achieve in their work | 188 | 1 | 5 | 4.33 | .737 |
| Nurses are able to separate main issues from side issues at work by setting priorities | 188 | 2 | 5 | 4.32 | .643 |
| Nurses perform their work well with minimal time and effort | 188 | 1 | 5 | 4.30 | .766 |
| ***Undertaking Extra roles (Contextual performance)*** | | | | | |
| Nurses always start new tasks themselves, when their old ones are finished | 188 | 2 | 5 | 4.40 | .713 |
| Nurses take on extra responsibilities | 188 | 3 | 5 | 4.36 | .771 |
| Nurses take on challenging work tasks, when available | 188 | 3 | 5 | 4.34 | .678 |
| Nurses' collaboration with co-workers, supervisors and management has been very productive at work | 188 | 2 | 5 | 4.31 | .755 |
| Nurses can communicate effectively and adequately express their ideas and intentions about work | 188 | 3 | 5 | 4.39 | .681 |
| ***Adaptability to changing work situations (Adaptive Performance)*** | | | | | |
| Nurses show resiliency at work by coping with stress, difficult situations and adversities | 188 | 2 | 5 | 4.16 | .686 |
| Nurses have always come up with creative solutions to new novel and difficult problems | 188 | 1 | 5 | 4.26 | .687 |
| Nurses keep their job knowledge and skills up-to-date by learning new tasks, technologies and procedures | 188 | 1 | 5 | 4.28 | .662 |
| Nurses are able to deal with uncertain and unpredictable work situations | 188 | 1 | 5 | 3.56 | 1.129 |
| Nurses are able to adjust their work goals when necessary | 188 | 2 | 5 | 4.32 | .764 |
| Valid N (listwise) | 188 | | | | |

**Source: Primary data, 2024**

In addition, the results on table 10 indicate that although adaptive performance was generally rated positively, nurses expressed some difficulty in handling unpredictable work situations. While scores were high for stress management (M=4.16), creative problem-solving (M=4.26), and learning new tasks (M=4.28), the item on dealing with uncertain or unpredictable situations scored the lowest among all performance indicators (M=3.56). This suggests that while nurses are generally resilient and adaptable, they may benefit from additional training in managing crisis situations, emergencies, and complex scenarios that require quick decision-making under pressure.

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### 4.3 Inferential statistics on the effect of Physical Health and Health Factors on Performance of Nurses in Public health facilities in Mbarara city

Examining the impact of physical health and safety factors on nurses' performance in Mbarara City's public health facilities was the study's first specific goal. Individual physical health and safety factors were used as predictors or independent variables, and nurse performance was used as the dependent variable in a regression analysis. The results are displayed below in tables 2:

**Table 22: Model Summary on the effect of physical health and safety factors on performance of nurses**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .749[a] | .561 | .544 | .21253 |

a. Predictors: (Constant), Treatment facilities, lighting, Ergonomics, Hospital conditions, exposure to radiations, Temperature/ventilation, wards conditions

**Source: Primary data, 2024**

The model summary results in table 2 above show that nurses' performance in public health facilities in Mbarara City is strongly positively correlated (R=.749) with physical health and safety factors. This indicates that an improvement in physical health and safety factors such as workstation and tools design, hospital conditions, hospital wards design, ventilation, lighting, exposure to radiations and protection from injury results to a corresponding increase in performance of nurses.

**Table 3: Analysis of Variance (ANOVA) results the effect of physical health and safety factors on performance of nurses**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 10.399 | 7 | 1.486 | 32.891 | .000[b] |
| | Residual | 8.130 | 180 | .045 | | |
| | Total | 18.529 | 187 | | | |

a. Dependent Variable: Performance of Nurses

b. Predictors: (Constant), Treatment facilities, lighting, Ergonomics, Hospital conditions, exposure to radiations, Temperature/ventilation, wards conditions

**Source: Primary data, 2024**

As shown in table 3 above, the coefficient of determination ($R^2$ =0.561) indicates that 56.1% of the variations in performance of nurses is explained by physical health and safety factors. After adjusting for other confounding factors, the adjusted R-square (Adj. $R^2$= .544) indicates that 54.4% of the variations in performance of nurses is explained by physical health and safety factors. The F-Statistic under ANOVA is greater than 1 which indicates that the variations explained by physical health and safety factors are statistically significant. The performance of nurses in Mbarara City's public health facilities is statistically significantly impacted by physical health and safety factors, according to the p-value under ANOVA.

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**Table 4: Regression coefficients on the effect of physical health and safety factors on performance of nurses**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.938 | .197 | | 9.849 | .000 |
| | Ergonomics | .061 | .024 | .127 | 2.496 | .013 |
| | Hospital conditions | .172 | .023 | .405 | 7.360 | .000 |
| | Ward conditions | .038 | .021 | .099 | 1.811 | .072 |
| | Temperature/ventilation | .065 | .022 | .159 | 3.023 | .003 |
| | Lighting | .154 | .020 | .414 | 7.758 | .000 |
| | Exposure to radiations | .031 | .024 | .069 | 1.321 | .188 |
| | Treatment facilities | .041 | .021 | .096 | 1.923 | .056 |

a. Dependent Variable: Performance of Nurses

**Source: Primary data, 2024**

The t-statistic, p-values, and standardized beta values are shown in the coefficients table in table 4 above. Standardized beta coefficients, also referred to as beta weights, quantify how nurses' performance changes when independent variables change by one standard deviation while holding all other independent variables constant. Greater effect size (predictive power) on the dependent variable is indicated by larger absolute values (B > 0.5), which typically have lower p-values ($p<0.05$). While beta values between 0.1 and 0.3 indicate small effect size and typically have p-values greater than 005, beta values between 0.3 and 0.5 indicate medium effect size and typically have p-values less than 0.05. To determine if the independent variable's impact on the dependent variable is statistically significant, the t-statistic is employed. A statistically significant effect is shown by a larger t-statistic ($t > 2$ or $t< -2$), and the p-value is often less than 0.05. Conversely, a modest t-statistic ($t<2$ or $t>-2$) suggests that there is no significant impact on the dependent variable, and the p-value is typically higher than 0.05.

Looking at the predictive power (beta), t-statistics and level of significance (sig), the coefficients table indicate that of all the physical health and safety factors, hospital conditions have the highest predictive power on performance of nurses (B=.405, t=7.360, p=0.000), followed by lighting (B=.414, t=7.758, p= .000), temperature control/ventilation (B=.159, t=3.023, p=.003) and ergonomics (B=.127, t=2.496, p= .013). These findings highlight how important well-designed workstations and equipment, ideal hospital surroundings, and better ventilation and lighting in hospital wards are to nurses' increased productivity in Mbarara City's public health facilities.

The current study's findings demonstrate that such challenges extend across all hospital wards, emphasizing the critical need for adequate hospital infrastructure to support nurse performance. In Mbarara City, suboptimal hospital conditions, such as overcrowded wards and outdated equipment, likely reduce nurse efficiency, lead to increased stress, and impair the quality of patient care. Investments in hospital infrastructure, including renovations and acquisition of modern medical tools, would enhance the overall functionality of public health facilities.

Lighting and temperature control emerged as significant factors affecting performance. Proper lighting ensures nurses can efficiently carry out tasks such as administering medication and managing patient care, while good ventilation and temperature control contribute to a comfortable working environment. These findings build on general occupational health principles but extend

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the specific role of lighting and ventilation in nurse performance. The current study fills a gap left by Lin et al. (2018)'s discussion of the relationship between physical activity and health and the community's and public health nurses' quality of life. They did not specifically address the role of workplace environmental factors. Improved lighting systems and enhanced ventilation mechanisms in hospital wards are essential for ensuring nurses can focus on their tasks without the added burden of environmental discomfort.

The study highlights ergonomics as a significant factor influencing nurse performance. Poor ergonomics, such as uncomfortable seating, lack of adjustable furniture, and inappropriate patient-handling equipment, contribute to physical strain and fatigue. The public health facilities in Mbarara City should prioritize ergonomic interventions, including adjustable furniture, patient lifting devices, and anti-fatigue mats, to reduce physical strain on nurses and enhance their productivity.

**4.4 Inferential statistics on the Effect of Competence Programmes on Employee performance in public health facilities in Mbarara city**

Examining the impact of competency programs on nurses' performance in Mbarara City's public health facilities was the study's second particular goal. Competency programs served as independent factors or predictors, and nursing performance served as the dependent variable in a regression analysis. The findings are shown in tables 14-16 below:

**Table 5: Model summary on the effect of Competence Programmes on performance of nurses**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .490[a] | .240 | .214 | .27899 |

a. Predictors: (Constant), Motivational Support, Respect with each other, Workgroup support, Welfare programmes, Mentorship programmes, Engagement with others

**Source: Primary data, 2024**

The model summary results in table above show that competence programs and nurse performance in Mbarara City's public health facilities have a strong positive relationship (R=.490). This suggests that when competency programs—like frequent mentorship programs, welfare programs, employee engagement, mutual respect, teamwork among nurses, and rewards for nurses—are improved, nurses' performance rises in tandem.

**Table 6: Analysis of Variance (ANOVA) results the effect of Competence Programmes on performance of nurses**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 4.441 | 6 | .740 | 9.510 | .000[b] |
| | Residual | 14.088 | 181 | .078 | | |
| | Total | 18.529 | 187 | | | |

a. Dependent Variable: Performance of Nurses

b. Predictors: (Constant), Motivational Support, Respect with each other, Workgroup support, Welfare programmes, Mentorship programmes, Engagement with others

**Source: Primary data, 2024**

The results in table 6 above indicate that the coefficient of determination ($R^2$ =0.240) indicates that 24.0% of the variations in performance of nurses is explained by competence programmes.

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After adjusting for other confounding factors, the adjusted R-square (Adj. $R^2$= .214) indicates that 21.4% of the variations in performance of nurses is explained by competence programmes. The F-Statistic under ANOVA is greater than 1 (F=9.510) which indicates that the variations explained by competence programmes are statistically significant. Competency programs have a statistically significant impact on nurses' performance in Mbarara City's public health facilities, according to the p-value under ANOVA (p=.000).

**Table 7: Regression coefficients on the effect of Competence Programmes on performance of nurses**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 3.013 | .203 | | 14.827 | .000 |
| | Mentorship programmes | .047 | .029 | .136 | 1.612 | .109 |
| | Welfare programmes | .019 | .031 | .052 | .619 | .537 |
| | Engagement with others | -.001 | .032 | -.002 | -.024 | .981 |
| | Respect with each other | -.041 | .026 | -.128 | -1.595 | .112 |
| | Workgroup support | .083 | .032 | .181 | 2.576 | .011 |
| | Motivational Support | .189 | .033 | .397 | 5.670 | .000 |

a. Dependent Variable: Performance of Nurses

**Source: Primary data, 2024**

Looking at the predictive power (beta), t-statistics and level of significance (sig), the coefficients table 16 above indicate that of all the competence programmes, motivational support have the highest predictive power on performance of nurses (B=.397, t=5.670, t=.000), followed by work group support (B=.181, t=2.576, p=.011) while regular mentorship programs, welfare programs, employee engagement and respect for each other have low effect on performance of nurses. These results identify the critical role of rewarding nurses and promoting teamwork at the workplace towards improved performance of nurses in public health facilities in Mbarara city.

The findings imply that rewards, both financial and non-financial, are crucial for sustaining high levels of nurse performance. Recognition for good performance, promotions, or tangible incentives can boost morale and job satisfaction. In Mbarara City, where nurses may face resource constraints and workload pressures, motivational support could mitigate burnout and improve commitment. The findings also underscore the crucial role of strengthening teamwork within a health care setting for improved staff performance. Teamwork fosters a collaborative environment, reducing stress and improving task efficiency. In Ugandan healthcare facilities, where staff shortages and resource constraints are common, teamwork can help nurses share responsibilities effectively, leading to better patient outcomes and professional satisfaction.

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**4.5 Hypothesis testing**

Hypothesis One ($H_1$)

*In public health facilities in Mbarara City, Uganda, nurses' performance is significantly impacted by physical and health factors.*

The findings of a regression study showed that physical and health characteristics and nurse performance had a substantial positive link (R =.749). The model explained 56.1% of the variation in performance ($R^2 = 0.561$), with an adjusted $R^2$ of 0.544. The F-statistic ($F = 32.891$, $p < .001$) confirmed the model's significance. Key predictors like hospital conditions ($\beta = .405$, $p < .001$), lighting ($\beta = .414$, $p < .001$), ventilation ($\beta = .159$, $p = .003$), and ergonomics ($\beta = .127$, $p = .013$) were statistically significant

**Decision:** The hypothesis ($H_1$) is accepted. Physical and health factors significantly influence nurse performance.

Hypothesis Two ($H_2$):

*The performance of nurses in public health institutions in Mbarara City, Uganda, is significantly impacted by competency programs.*

The regression model indicated a moderate positive relationship (R = .490), with $R^2 = 0.240$ and adjusted $R^2 = 0.214$. The F-statistic ($F = 9.510$, $p < .001$) signaled a significant model. Among the predictors, motivational support ($\beta = .397$, $p < .001$) and workgroup support ($\beta = .181$, $p = .011$) had the strongest positive influence, while other variables like mentorship, respect, and engagement were not significant

**Decision:** We accept the hypothesis ($H_2$). Nurse performance is statistically significantly impacted by competency programs.

Hypothesis Three ($H_3$):

*The performance of nurses in public health facilities in Mbarara City, Uganda, is significantly impacted by work environment factors.*

Regression analysis revealed a strong correlation between nurse performance and work environment (R =.805). With an adjusted R2 of.634, the model accounted for 64.8% of the variance (R2 =.648). F = 47.286, p <.001 indicated that the model was statistically significant. Supervision ($\beta$ =.534, p <.001), communication ($\beta$ =.289, p <.001), staffing ($\beta$ =.225, p <.001), and recognition ($\beta$ =.255, p <.001) were significant predictors.

**Decision:** The hypothesis ($H_3$) is accepted. Work environment significantly affects nurse performance.

Hypothesis Four ($H_4$):

*The performance of nurses in public health institutions in Mbarara City, Uganda, is significantly impacted by personal variables.*

The regression results showed a weak but statistically significant relationship (R = .295), explaining 8.7% of the variance in nurse performance ($R^2 = .087$, adjusted $R^2 = .062$). The model was significant ($F = 3.461$, $p = .005$). Among personal factors, only lifestyle had a significant effect ($\beta = .186$, $p = .022$); other variables such as psychological health, motivation, and behavior were not statistically significant

**Decision:** The hypothesis ($H_4$) is accepted. Personal factors, particularly lifestyle, have an effect on nurses' performance that is statistically significant.

Hypothesis Five ($H_5$):

*Nurse performance in public health institutions in Mbarara City, Uganda, is significantly impacted by occupational health and safety (OHS) concerns.*

Although not listed as a separate regression output in Chapter Four, the entire study focuses on OHS domains, physical health and safety factors, competence programmes, work environment and personal factors as dimensions of OHS. Since all four domains were found to have significant effects on performance, the overarching OHS construct can be inferred to significantly impact performance as well.

**Decision:** The hypothesis ($H_5$) is accepted by aggregation. Occupational health and safety factors, through their dimensions, significantly influence nurse performance in public health facilities in Mbarara City.

5.0 Discussion of Findings

The study established a statistically significant association between physical and health-related factors and nurse performance in Mbarara City's public hospitals, corroborated by both correlation and regression analyses. Facility conditions, lighting quality, air circulation, and ergonomic arrangements emerged as critical determinants of task efficiency, aligning with Kerr's (1954) *Goal-Freedom Alertness Theory*, which underscores the role of a safe and conducive environment in enhancing employee alertness and productivity. Similar to the findings of Christian et al. (2019) and Jha (2019), the results demonstrated that clean, well-ventilated, and adequately lit workspaces foster concentration, reduce environmental stressors such as overcrowding and poor ventilation, and consequently improve mental focus and performance. Conversely, substandard physical conditions were linked to fatigue, distraction, and burnout risks, echoing concerns raised by Donnelly et al. (2019) regarding the direct impact of occupational settings on healthcare delivery.

Competence development programmes also had a statistically meaningful impact on nurse performance, with motivational and workgroup support producing the strongest effects. These results resonate with Hanaysha (2016) and Ravindran (2021), who highlight that structured training, professional development, and supportive peer networks increase job satisfaction and clinical effectiveness. From a theoretical standpoint, *Goal-Freedom Alertness Theory* reinforces the role of autonomy, guided support, and goal alignment in sustaining alertness and operational efficiency. Motivational support, in particular, was shown to enhance nurses' capacity to adapt to dynamic clinical demands, a finding echoed by Al-Haroon and Al-Qahtani (2020) in their study on performance determinants in hospital settings. The weaker influence of mentorship and respect indicates possible gaps in institutionalizing these practices, suggesting a need for structured mentorship frameworks consistent with recommendations by Li et al. (2018) for sustaining workforce morale.

Work environment variables—staffing adequacy, communication effectiveness, supervision quality, and recognition—emerged as the most significant predictors of nurse performance. This aligns with *Distractions Theory* (Hinze, 1997), which posits that well-managed environments reduce cognitive distractions, enabling employees to focus on critical tasks. Prior studies by Schwatka et al. (2018) and Boakye-Dankwa et al. (2017) similarly found that positive work environments improve employee retention and performance, while Mayer's (2010) *Model of Commitment* suggests that supportive conditions foster affective commitment, where employees perform well out of intrinsic motivation. Recognition stood out as a strong predictor, reinforcing the findings of Brun and Dugas (2008) that acknowledging employee efforts enhances job satisfaction, reduces turnover intentions, and sustains high performance in high-stress professions such as nursing.

Personal factors exhibited a weaker but statistically significant correlation with nurse performance, with lifestyle being the only element exerting a notable effect. This finding is consistent with

Hariyanto et al. (2021) and Kuswati (2018), who observed that healthy lifestyle practices—adequate rest, physical activity, and low-risk behaviors—contribute to sustained energy, focus, and resilience in the workplace. The limited influence of psychological health and intrinsic motivation may be attributed to systemic pressures in public healthcare systems, such as resource shortages and high patient-to-nurse ratios, which can dampen individual drive, as discussed by Aiken et al. (2012) in their research on nurse working conditions. These results underscore the need for balanced interventions that combine improvements in workplace conditions with initiatives promoting individual well-being to optimize nurse performance

## 6.0 Summary

The research found a meaningful and statistically significant relationship between physical and health-related conditions and the performance of nurses. Elements such as adequate lighting, proper ventilation, ergonomic setup of workstations, and the general state of hospital facilities were closely linked to higher levels of nurse productivity. Regression results confirmed that these physical factors play a major role in explaining the differences in nurse performance. This implies that when healthcare staff work in hygienic, safe, and well-structured environments, their focus, efficiency, and professional commitment improve. These insights highlight the critical need for healthcare institutions to invest in environmental upgrades and infrastructure improvements to enhance the performance of nursing personnel.

The study established that competence enhancement programs such as mentorship, staff motivation, teamwork, and welfare initiatives have a significant impact on nurses' job performance. Notably, motivation and collaborative teamwork stood out as the most influential elements. The analysis suggests that when nurses benefit from proper training, acknowledgment, and emotional encouragement from colleagues and supervisors, their confidence, involvement, and output improve substantially. These capacity-building efforts not only equip nurses with essential knowledge and practical skills but also promote a sense of belonging and recognition within the healthcare setting. The findings underscore the importance of well-structured professional development systems in achieving high standards in nursing practice.

The study concludes that physical and health-related factors have a substantial and positive effect on nurses' performance. Adequate lighting, proper ventilation, safe work environments, and ergonomically designed workstations enhance nurses' capacity to provide high-quality care. A supportive physical setting reduces distractions and fatigue, thereby boosting productivity. The findings suggest that investing in physical infrastructure and maintaining environmental safety goes beyond regulatory compliance, it serves as a strategic approach to improving nursing performance.

The study concludes that competence programmes significantly influence nurse performance. Elements such as mentorship, motivation, welfare support, and teamwork help build the professional capacity and morale of nurses. In particular, motivational support and collaborative work environments were identified as key drivers of performance improvement. The conclusion is that structured and well-implemented competence development initiatives foster skill enhancement, emotional resilience, and job satisfaction among nurses, leading to better service delivery.

## 7.0 Recommendations

To enhance nurse performance in Mbarara City's public health facilities, investments in physical and health-related conditions must be prioritized. Administrators should ensure adequate lighting, ventilation, noise control, and cleanliness in compliance with occupational safety standards,

alongside ergonomic workstations to minimize fatigue and injury. Regular maintenance and safety audits, reinforced infection control measures, and protective infrastructure such as safe waste disposal systems are critical for fostering a secure and productive work environment. Strengthening competence development through continuous professional development (CPD), structured mentorship programs, peer-support networks, and welfare initiatives like recognition awards and mental health services will further boost nurses' confidence, adaptability, and clinical effectiveness. Competence programs should also address evolving responsibilities by integrating both technical and interpersonal skills.

Work environment improvements should focus on fostering transparent communication, supportive supervision, and effective staffing to match patient demand. Training supervisors in performance coaching, conflict resolution, and inclusive leadership will reduce burnout, improve morale, and encourage collaborative problem-solving. Recognition systems that acknowledge outstanding contributions can strengthen affective commitment and retention. Although organizational factors dominate performance outcomes, personal factors such as lifestyle and well-being remain influential. Implementing wellness programs, regular health screenings, counseling services, and stress management workshops will support nurses' resilience, lower absenteeism, and promote sustained productivity. Embedding these initiatives within a comprehensive occupational health and safety (OHS) policy, aligned with national standards and monitored by OHS committees, will institutionalize safety as a core strategic priority.

For future research, expanding the scope beyond nurses and doctors to include other healthcare professionals such as clinical officers, midwives, and laboratory technicians would provide a more holistic understanding of OHS influences on multidisciplinary teams. Comparative studies between public and private facilities, or across regions, could identify disparities and best practices for policy replication. Longitudinal designs tracking the long-term impact of targeted OHS interventions, and qualitative or mixed-methods approaches exploring the lived experiences of healthcare workers, would offer richer context. Further investigations into additional dimensions such as safety culture, reporting systems, and legal frameworks, as well as the indirect link between OHS, nurse well-being, and patient care quality, could yield actionable evidence for enhancing both workforce performance and healthcare delivery outcomes.

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