

The Influence of Healthcare Workers' Awareness and Attitudes on Occupational Safety and Performance Outcomes

Naveen¹, Dr. Gunjan Tripathi²

¹Research Scholar, Department of Commerce and Management, SGT University, Gurugram

²Assistant Professor, Department of Commerce and Management, SGT University, Gurugram

KEYWORDS

Occupational Safety, Awareness, Attitude, Performance, Smartpls, Exploratory, Confirmatory, Factor Analysis, Inferential, Statistical

ABSTRACT

Healthcare workers' knowledge and thoughts about workplace dangers and safety precautions affect how well they perform their jobs. Working in healthcare places can be dangerous due to the risk of catching illnesses, coming into contact with harmful materials and getting hurt, so knowing and following safety rules is extremely important. The study uses a short survey method to collect responses through a checklist-style questionnaire from healthcare workers selected randomly but fairly among nurses, lab workers, x-ray technicians and janitorial staff. The questionnaire assesses three key areas: Three main areas were studied: 1) their knowledge about workplace dangers and how to stay safe; 2) their mindset about following protective measures; and 3) their own accounts of how they perform their safety duties. The study team used both descriptive and inferential statistical methods - Exploratory and Confirmatory Factor Analysis (EFA and CFA) and the Cronbach's alpha test - to delve into and understand the data results. Staff in healthcare follow safety rules better and do better at their jobs when they understand and have good feelings about workplace safety. Different health care groups think about and understand safety in their own ways, which means safety programs need to be customized for each group. The results show why it matters to have full safety training programs and good working cultures - to make workers more alert and encourage better safety attitudes and practices. Our findings help make healthcare places safer for workers, protect patients and improve how healthcare is delivered.

Introduction

Healthcare workers play a crucial role in delivering high-quality care to patients and their safety and well-being are essential for ensuring optimal performance outcomes. The COVID-19 pandemic has highlighted the importance of occupational safety and the need to address the factors that influence healthcare workers' perceptions and attitudes towards safety practices. (Sun et al., 2023) Existing research suggests that healthcare workers' knowledge, perceptions and attitudes towards occupational safety and health can significantly impact their safety behaviors and, consequently, patient outcomes (Muda et al., 2020). Studies have shown that factors such as organizational culture, leadership and the physical work environment can influence healthcare workers' perception of workplace safety, which in turn affects their engagement, job satisfaction and quality of care delivered to patients. (Lundstrom et al., 2002) (Sun et al., 2023)

Specifically, research indicates that healthcare workers' perception of the safety climate within their organization is a key determinant of their safety behaviors and performance outcomes. The physical work environment, such as the availability of personal protective equipment and the cleanliness of the facility, can also impact healthcare workers' perception of safety and their willingness to adhere to safety protocols. (Lundstrom et al., 2002) Moreover, the relationship between healthcare workers' engagement and patient safety outcomes has been explored in recent literature. Engaged healthcare workers are more likely to be attuned to safety practices and patient needs, leading to better patient outcomes. However, the ongoing challenges posed by the COVID-19 pandemic have likely affected healthcare workers' engagement and their perception of workplace safety, underscoring the need for further investigation in this area. The existing literature highlights the importance of addressing healthcare workers' awareness, attitudes and perceptions towards occupational safety as a means of improving overall

performance outcomes and patient safety. Future research should further explore the nuances of this relationship and identify effective strategies for fostering a strong safety culture within healthcare organizations (Lundstrom et al., 2002)(Scott et al., 2022)(Kapinos et al., 2012)(Sun et al., 2023).

Overview of Occupational Risks in Healthcare

Healthcare professionals are exposed to a wide range of occupational risks in their daily work, which can have significant impacts on their health, safety and well-being. One of the most concerning issues is workplace violence, which is defined as any incident where staff are abused, threatened, or assaulted in circumstances related to their work. (Li et al., 2020) Studies have shown that healthcare workers face a significantly higher risk of workplace violence compared to other professions, with some estimates indicating they are assaulted up to sixteen times more often than workers in other service sectors. (Saeedi et al., 2021) The consequences of such violence can be severe, including increased rates of depression, anxiety, post-traumatic stress disorder and substance abuse, as well as reduced staff retention. (Griffiths et al., 2015) Several factors contribute to the prevalence of workplace violence in healthcare settings. Patient characteristics, such as mental health issues or the effects of medication, can lead to aggressive behavior. Environmental factors, such as poor security or overcrowding, can also increase the risk. (Griffiths et al., 2015) Organizational policies and a lack of training for staff in de-escalation and self-defense techniques have also been identified as key risk factors (Saeedi et al., 2021) (Griffiths et al., 2015) (HN et al., 2020). To address this growing problem, a range of interventions have been implemented, including education and training programs, patient risk assessment protocols and environmental design modifications to improve safety. However, the effectiveness of these approaches is not well-established and more research is needed to identify the most impactful and evidence-based strategies for preventing and managing workplace violence in healthcare settings (Lim et al., 2022) (Martinez, 2016) (Griffiths et al., 2015) (Saeedi et al., 2021).

Importance of Awareness and Attitudes in Occupational Safety

Maintaining a safe and secure work environment is a critical concern for organizations across various industries, as it not only safeguards the well-being of employees but also contributes to the overall productivity and success of the business. One crucial aspect of occupational safety is the awareness and attitudes of workers towards safety practices and protocols. (Ali et al., 2017) (Muñiz et al., 2007) Research has shown that a positive safety culture within an organization, where employees are encouraged to prioritize safety and actively participate in maintaining a safe work environment, can have a significant impact on reducing workplace incidents and injuries (Velás et al., 2021). This culture of safety awareness and attitudinal shift is not just the responsibility of management but requires the collective effort of all employees. The dimensions of safety culture, such as management commitment, work environment and employee involvement, play a critical role in shaping the overall safety performance of an organization. (Naji et al., 2021) Strong management commitment to safety, for instance, can enhance employees' skills and knowledge, ultimately leading to the prevention of injuries and the reduction of stress-related issues. (Naji et al., 2021) Similarly, fostering a work environment that prioritizes work-life balance and minimizes excessive demands on workers can help mitigate the impact of psychosocial hazards, which have been found to contribute to increased stress and safety performance issues. (Naji et al., 2021) To build a strong safety culture, organizations must create an environment that enables safety to be a core value, one that is embraced and practiced by all employees, both at work and in their personal lives.

Literature Review

Medical staff go through many workplace dangers because they work in unpredictable and risky conditions. Healthcare workers face several kinds of hazards: diseases that spread by contact, harmful chemicals they use, injuries from lifting patients and mental challenges like stress and exhaustion. Even more danger arises when healthcare staff suffer cuts from sharp items, don't use safety gear correctly and follow poor health procedures. Healthcare workers

hurt in their job risk getting sick and making patients less safe since they can't offer their best care under those conditions. We must fully understand health risks, how common they are and how they harm hospitals to fix them - putting safety procedures and proper training first. (Vinodkumar, M. N, 2010).

How healthcare professionals feel about safety measures makes a big difference in how well they follow them. When healthcare workers see value in safety measures, they're more likely to consistently follow safety instructions like using personal protective equipment, keeping clean and checking that work processes are correct. When people think these practices are bothersome, won't work, or aren't needed, they often refuse to follow them, raising their exposure to workplace dangers. Workers follow safety practices better when company leaders show support, recognize their work and make safety materials easy to find and use. Our attitudes toward safety change based on our experiences, how our coworkers act and what we think will happen if we follow or ignore safety rules. By improving how we talk, lead and train people, we can make better safety habits common at work, building a team that actively protects its own health and safety. (Philimis, J, 2022).

Being aware of safety helps healthcare workers spot danger and use protective steps correctly. When workers understand workplace risks and how to use their safety gear and procedures, fewer accidents happen and they stay safer. When people on the job know the right things, they can spot problems before they turn into accidents. Being aware helps workers follow safety rules and legal demands while making the work team responsible for safety. Training healthcare workers with specific programs helps them learn how to stay safe, know the latest safety practices and recognize new workplace dangers. High levels of awareness help make workplaces safer, risks lower and everyone performs better. (Ramaci, T, 2020).

When healthcare workers like PPE, cleaning routines and policy steps are easy to follow because they have the right mindset. Negative viewpoints that view safety rules as bothersome, ineffective, or unnecessary cause healthcare staff to break them, which raises their risk of workplace dangers. The way a company runs shapes how employees care about safety through good management that acknowledges hard work, celebrates dedication and makes it easy to get safety tools. Workers form their safety attitudes based on their own past work accidents, how their coworkers behave and what happens when they use safety measures. Workers will follow safety rules better when leaders communicate well, set a good example and teach everyone how to stay safe on the job. (Heier, L, 2021).

Research Methodology

The methodology chapter is the central part of scholarly studies, explaining the methods, instruments and reasons behind investigating the research question. An organized research method gives your study more trustworthiness, makes it easier for others to repeat your work and helps you meet your research aims and test your ideas. We're studying how healthcare workers know, feel and perform around workplace risks and safety gear and it's important that we carefully build our research method. A cross-sectional survey was used to study patterns across variables at the same moment, allowing us to collect information from many workers quickly and understand their current actions and knowledge. To make sure each healthcare worker type was fairly included - nurses, lab workers, x-ray staff and cleanliness crew - a mixed random sampling system was put in place. Sampling carefully let us see how different healthcare professionals compared when they had different job risks and tasks. The required number of survey participants was established to produce trustworthy results while working within time and practical limits. We used a ready-made form with questions designed for healthcare work when gathering information. The survey recorded people's understanding, views and claimed actions about keeping themselves safe at work. We used trusted question formats to build our queries, making sure they could consistently and accurately measure what we needed: basic understanding, staff opinions on protection measures and actual compliance with safety rules.

Sample Size

The sample size for this study is 410 healthcare workers, determined using Cochran's formula for an undefined population. Cochran's formula is widely used in research to calculate an ideal sample size when the population size is unknown and it is particularly useful when the objective is to estimate proportions with a specified level of precision.

The formula used is:

$$n = [Z^2 \cdot p \cdot (1 - p)]/e^2$$

Where:

- n is the required sample size,
- Z is the Z-value (the number of standard deviations a point is away from the mean) corresponding to the desired confidence level (typically 1.96 for a 95% confidence level),
- ppp is the estimated proportion of an attribute that is present in the population (if unknown, 0.5 is used as it provides the maximum variability),
- e is the margin of error (typically 5%).

This sample size ensures that the study's findings are statistically significant and generalizable to the broader population of healthcare workers in East Haryana.

Research Technique

To analyze the hypotheses, **structural equation modeling (SEM)** was employed to examine the relationships between variables: awareness (AWAR), attitude (ATTA) and performance outcome (PERF). The technique involved calculating path coefficients, T statistics and p-values to determine the strength and significance of these relationships. **R-square values** were utilized to assess the proportion of variance explained in the dependent variables by the independent variables, with adjusted R-square values ensuring model reliability. Specific indirect effects and the **Variance Accounted For (VAF)** method were applied to evaluate the mediating role of attitude between awareness and performance outcome, distinguishing between direct, indirect and total effects.

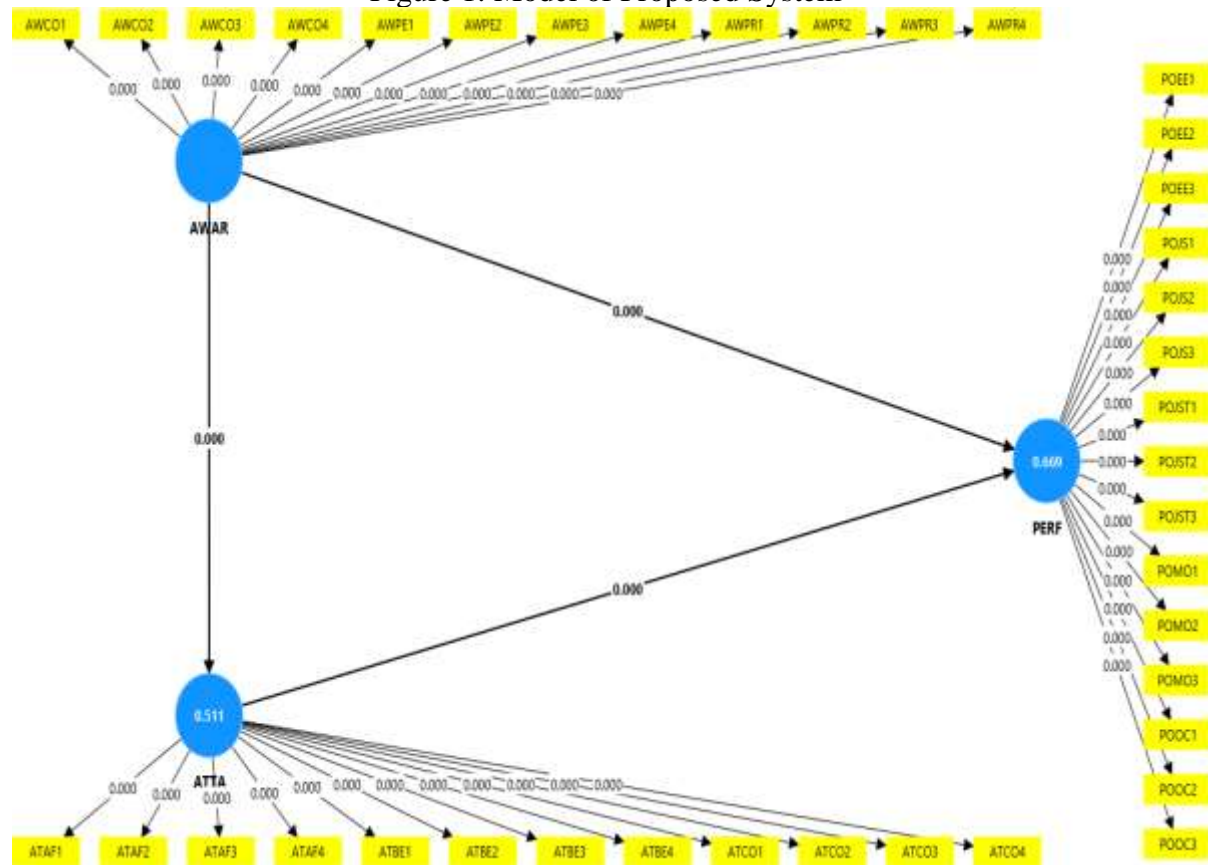
Hypothesis Testing:

1. H₀1: There is no significant impact of healthcare workers' awareness on their attitude.
2. H₀2: There is no significant impact of healthcare workers' awareness on performance outcome
3. H₀3: There is no significant impact of healthcare workers' attitude on performance outcome
4. H₀4: There is no significant mediating effect of attitude between Awareness and Performance Outcome.

Results and Discussion

Model used

Figure 1: Model of Proposed System



The Standardized Root Mean Square Residual (SRMR) is a common measure used to assess the fit of a model in structural equation modeling. According to standard criteria, an SRMR value below 0.1 or, more strictly, below 0.08 is considered acceptable, indicating a good model fit. In our analysis, the SRMR value of the model is 0.078, which falls within the acceptable range as per these criteria. This suggests that the model exhibits a good fit and adequately represents the data. The acceptable SRMR value further supports the reliability and validity of the model's structure, confirming that the differences between the observed and predicted correlations are minimal. Therefore, we can conclude that the overall fitness of the model is satisfactory. As per standard criteria, the SRMR value must be less than 0.1 or 0.08 to indicate a good model fit. The SRMR value of our model is 0.078, which is acceptable and confirms good model fitness. This shows minimal differences between observed and predicted values, ensuring reliability in our constructs: **AWAR** (Awareness), **ATTA** (Attitude) and **PERF** (Performance Outcome).

Table 1: R-square

	R-square	R-square adjusted
ATTA	0.511	0.509
PERF	0.669	0.668

Table 2: Path coefficients

Mean, STDEV, T values, p values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
ATTA -> PERF	0.609	0.610	0.043	14.228	0.000
AWAR -> ATTA	0.714	0.716	0.030	23.685	0.000
AWAR -> PERF	0.263	0.263	0.051	5.199	0.000

H₀1: There is no significant impact of healthcare workers' awareness on their attitude

The Path coefficient table shows that Beta (Path Coefficient) value of Awareness and Attitude is 0.714 which means the change in independent variable i.e. AWAR (Awareness) by one unit will bring about the change in the dependent variable i.e. ATTA (Attitude) by 0.714 units. The T statistics i.e. 23.685 is greater than 1.96 and this signifies that the p value is significant. Thus null hypothesis is rejected.

Finally the result shows that there is significant impact of healthcare workers' awareness on their attitude.

H₀2: There is no significant impact of healthcare workers' awareness on performance outcome

Beta (Path Coefficient) value of Awareness and Performance outcome is 0.263 which means the change in independent variable i.e. AWAR (Awareness) by one unit will bring about the change in the dependent variable i.e. PERF (Performance Outcome) by 0.263 units.

The T statistics i.e. 5.199 is greater than 1.96 and this signifies that the p value is significant. Thus null hypothesis is rejected. Finally the result shows there is significant impact of awareness of healthcare workers on the performance outcome.

H₀3: There is no significant impact of healthcare workers' attitude on performance outcome

Beta (Path Coefficient) value of Attitude and Performance outcome is 0.609 which means As indicated the beta value is 0.609, which means the change in independent variable i.e. ATTA (Attitude) by one unit will bring about the change in the dependent variable i.e. PERF (Performance Outcome) by 0.609 units.

The T statistics i.e. 14.228 is greater than 1.96 and this signifies that the p value is significant. Thus null hypothesis is rejected. Finally the result shows there is significant impact of attitude of healthcare workers on the performance outcome.

H₀4: There is no significant mediating effect of attitude between Awareness and Performance Outcome

Table 3: Specific indirect effects

Mean, STDEV, T values, p values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
AWAR -> ATTA -> PERF	0.435	0.437	0.036	11.984	0.000

Type of Effect	Effect	Path Coefficient	T statistic	P Value
Total Effect	AWAR -> PERF	0.700	20.711	Sig effect
Indirect Effect	AWAR -> ATTA -> PERF	0.437	11.984	Sig Indirect Effect
Direct Effect	AWAR -> PERF	0.263	5.199	Sig Direct effect
VAF (Variance Accounted For)	IE/TE	0.624121465		
		62.41%		

Remarks: AWAR represents the Independent variable Awareness, ATTA represents the Independent variable Attitude, PERF represents the Dependent variable Performance outcome VAF shows the strength of relationship between mediator and Dependent Variable.

VAF (Variance Accounted For) Value Interpretation:

VAF > 80%: Full Mediation

VAF between 0.20 and 0.80: Partial Mediation

VAF < 0.20: No Mediation

Thus as per the standard criteria for VAF, our results shows the value of VAF is 62.41% that suggests moderately strong partial Mediation of Attitude between awareness and performance outcome. As shown in table of Specific indirect Effects, the value of T statistics is 11.984 which is greater than the 1.96. Thus null hypothesis is rejected. Finally the result shows there is significant mediating effect of attitude between awareness and performance outcome.

Hypothesis 1 (Ho1): There is no significant impact of healthcare workers' awareness on their attitude. The path coefficient between awareness (AWAR) and attitude (ATTA) is 0.714, with a T statistic of 23.685 (greater than 1.96) and a p-value of 0.000 (significant). This indicates that an increase in awareness significantly improves attitude.

Decision: Null hypothesis is rejected.

Hypothesis 2 (Ho2): There is no significant impact of healthcare workers' awareness on performance outcome. The path coefficient between awareness (AWAR) and performance outcome (PERF) is 0.263, with a T statistic of 5.199 (greater than 1.96) and a p-value of 0.000 (significant). This shows that awareness has a significant positive impact on performance outcome.

Decision: Null hypothesis is rejected.

Hypothesis 3 (Ho3): There is no significant impact of healthcare workers' attitude on performance outcome. The path coefficient between attitude (ATTA) and performance outcome (PERF) is 0.609, with a T statistic of 14.228 (greater than 1.96) and a p-value of 0.000 (significant). This confirms that attitude significantly influences performance outcome.

Decision: Null hypothesis is rejected.

Hypothesis 4 (Ho4): There is no significant mediating effect of attitude between awareness and performance outcome. The specific indirect effect of awareness (AWAR) on performance outcome (PERF) via attitude (ATTA) is 0.437, with a T statistic of 11.984 (greater than 1.96) and a p-value of 0.000 (significant). The Variance Accounted For (VAF) is 62.41%, indicating

partial mediation.

Decision: Null hypothesis is rejected.

Conclusion

Managing health risks and following safety rules is mostly affected by how well healthcare workers know and think about workplace safety, according to the study. Healthcare staff who understand health risks and safety steps will usually follow protection rules better and work more effectively. Employees who like the safety rules they must follow at work tend to stick with their safety routines, which helps them stay safe and protect their patients. The results show different levels of understanding and viewpoints across different worker groups, pointing out why specific safety training programs must be created for each group's particular work demands. The study shows being open to safety practices in healthcare helps nurses and other staff members protect themselves and their patients better. Make safety a priority by regularly teaching people, giving them the right safety tools and helping them support a workplace focused on following safety rules. Healthcare organizations can protect workers better, help them do their job better and give higher-quality care by fixing what they know about safety and how they feel about it. The results clearly show we need to take action to make workers more aware of safety rules and to develop better attitudes towards them. This will help make healthcare places both safer and run more smoothly. These study results help future researchers and healthcare professionals develop better ways to keep the workplace safe.

References

1. Ali, D., Yusof, Y., & Adam, A. (2017). Safety Culture and Issue in the Malaysian Manufacturing Sector. In MATEC Web of Conferences (Vol. 135, p. 31). EDP Sciences.
2. Beriha, G. S., Patnaik, B., & Mahapatra, S. S. (2011). Measuring the perception of safety officers on occupational health in Indian industries. *International Journal of Indian Culture and Business Management*, 4(1), 30-47.
3. Bhattacharya, I., & Ramachandran, A. (2015). A path analysis study of retention of healthcare professionals in urban India using health information technology. *Human resources for health*, 13, 1-14.
4. Hall, W. J., Chapman, M. V., Lee, K. M., Merino, Y. M., Thomas, T. W., Payne, B. K., ... & Coyne-Beasley, T. (2015). Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: a systematic review. *American journal of public health*, 105(12), e60-e76.
5. Heier, L., Gambashidze, N., Hammerschmidt, J., Riouchi, D., Weigl, M., Neal, A., ... & Ernstmann, N. (2021). Safety performance of healthcare professionals: validation and use of the adapted workplace health and safety instrument. *International Journal of Environmental Research and Public Health*, 18(15), 7816.
6. Jones, S. (2005). COMMUNITY-BASED ECOTOURISM. In *Annals of Tourism Research* (Vol. 32, Issue 2, p. 303). Elsevier BV.
7. Khaday, S., Li, K. W., & Dorloh, H. (2023, February). Factors affecting preventive behaviors for safety and health at work during the COVID-19 pandemic among Thai construction workers. In *Healthcare* (Vol. 11, No. 3, p. 426). MDPI.
8. Mu, Y., Nepal, S. K., & Lai, P.-H. (2019). Tourism and sacred landscape in Sagarmatha (Mt. Everest) National Park, Nepal. In *Tourism Geographies* (Vol. 21, Issue 3, p. 442). Taylor & Francis.
9. Muñiz, B. F., Montes-Peón, J. M., & Vázquez-Ordás, C. J. (2007). Safety culture: Analysis of the causal relationships between its key dimensions. In *Journal of Safety Research* (Vol. 38, Issue 6, p. 627). Elsevier BV.
10. Mutegi, T. M., Joshua, P. M., & Kinyua, J. M. (2023). Workplace Safety and Employee Productivity of Manufacturing Firms in Kenya. *Cogent Business & Management*, 10(2), 2215569.

11. Naji, G. M. A., Isha, A. S. N., Mohyaldinn, M. E., Leka, S., Saleem, M. S., Rahman, S. M. N. B. S. A., & Alzoraiki, M. (2021). Impact of Safety Culture on Safety Performance; Mediating Role of Psychosocial Hazard: An Integrated Modelling Approach [Review of Impact of Safety Culture on Safety Performance; Mediating Role of Psychosocial Hazard: An Integrated Modelling Approach]. *International Journal of Environmental Research and Public Health*, 18(16), 8568. Multidisciplinary Digital Publishing Institute.
12. Negi, C. S. (2010a). Traditional Knowledge and Biodiversity Conservation: A Preliminary Study of the Sacred Natural Sites in Uttarakhand, Central Himalaya. In *Journal of Biodiversity* (Vol. 1, Issue 1, p. 43).
13. Negi, C. S. (2010b). Traditional Culture and Biodiversity Conservation: Examples From Uttarakhand, Central Himalaya. In *Mountain Research and Development* (Vol. 30, Issue 3, p. 259). International Mountain Society.
14. Philimis, J. (2022). Occupational Health and Safety among Healthcare a Review of Literature. *Special Education*, 2(43).
15. Ramaci, T., Barattucci, M., Ledda, C., & Rapisarda, V. (2020). Social stigma during COVID-19 and its impact on HCWs outcomes. *Sustainability*, 12(9), 3834.
16. Rana, S., Kaur, K. N., Narad, P., Walia, K., Saeed, S., Chandra, A., ... & Singh, H. (2024). Knowledge, attitudes and practices of antimicrobial resistance awareness among healthcare workers in India: a systematic review. *Frontiers in Public Health*, 12, 1433430.
17. Schachenmann, P. (2006). Spiritual Values in Madagascar. In *Mountain Research and Development* (Vol. 26, Issue 4, p. 323). International Mountain Society.
18. Veľas, A., Halaj, M., Hofreiter, L., Kampová, K., Zvaková, Z., & Jankura, R. (2021). Research of security and safety culture within an organization. The case study within the Slovak Republic. In *Security Journal* (Vol. 35, Issue 2, p. 571). Palgrave Macmillan.
19. Verschuuren, B. (2012). Integrating biocultural values in nature conservation: perceptions of culturally significant sites and species in adaptive management. In *Cambridge University Press eBooks* (p. 231). Cambridge University Press.
20. Vinodkumar, M. N., & Bhasi, M. (2010). Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation. *Accident Analysis & Prevention*, 42(6), 2082-2093.
21. World Health Organization. (2006). *Working together for health: the World health report 2006: policy briefs*. World Health Organization.