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Occupational Safety and Health Practices of Selected Private Higher Education Institutions in the Philippines

[1]Lorraine Turiano*
Corresponding Author: * estadilla@kku.edu.sa
[1] King Khalid University, College of Nursing, Saudi Arabia

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ABSTRACT

Higher education institutions (HEIs) are as important as other workplace settings. During the COVID-19 pandemic, the Commission on Higher Education (CHED) and the Department of Health (DOH) put a premium on the safety and health of all HEI stakeholders. This research determines the occupational safety and health (OSH) practices of HEIs in Region V to assess how far they have started and implemented health and safety measures for the well-being of all employees. A descriptive–evaluative method was utilized in conducting this study. Questionnaires and documentary analysis were used as data-gathering tools. The prevalence of OSH practices was high in the six HEIs selected in Region V. There was also a significant difference in the appraisals of stakeholders, even if they rated the indicators as highly practiced. The challenges cited were least experienced by the stakeholders, specifically, regulations to ban and control dangerous products, low public awareness of OSH, recurrent fluctuations in the amount of work, and conflicting work demands. There is a need to consult employees in policy formulation to increase participation. Having adequate facilities not only protects workers from hazards but also increases workers' productivity. Safe and adequate facilities are needed to encourage employees to go to work because they need to know that they can still attend to their personal needs while at school. Staff require information and training to operate safely without putting their health at risk.

Keywords
Health
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Introduction

Workplace safety and health have become primordial concerns of industries and institutions because all workers desire to work in a safe and protected environment. Each person who leaves home for work should return safely and in good health. All industries have hazards and interpose safety and health risks. Thus, top management should pay attention to developing standards, protocols, and mechanisms to ensure that their workers are safe all the time. Without proper workplace safety measures, organizations pose risks to their employees, customers, and revenues. Additionally, failure to teach employees how to maintain a safe work environment may lead to accidents, injuries, and, worst of all, fatalities in the workplace.

The Occupational Safety and Health Administration (OSHA) is responsible for protecting worker's safety and health in the United States. Congress created OSHA in 1971, following its passage of the Occupational Safety and Health (OSH) Act of 1970, to ensure safe and healthy working conditions for workers by enforcing workplace laws and standards and by providing training, outreach, education, and assistance. Congress enacted the OSH Act in response to workplace accidents that resulted in approximately 14,000 worker deaths and 2.5 million disabled workers annually [1].

Recognizing the importance of OSH hazards in all workplaces, the joint ILO-UNESCO Committee of Experts on the Application of the Recommendations (CEART) prepared a report for the 11th Session, which describes the effects of violence on teachers and students. It has been observed that only a few researchers have focused on school-related violence affecting teachers [2].

In the Philippines, OSH standards were formulated in 1978 in compliance with the constitutional mandate to safeguard workers' social and economic well-being as well as their physical health and safety. It is stated in the standards that all sectors concerned, whether they be in labor, management, or government should extend their full support, to achieve the noble objectives of OSH [3].

By applying OSH standards to the education sector, other government agencies also make an effort to maintain safety and health in institutions. The Department of Education (DepEd), the Commission on Higher Education (CHED), and the Philippine Red Cross (PRC) forged a partnership for the promotion of volunteerism, humanitarian values, and the culture

of safety and health through the establishment of Red Cross Youth Councils (RCYCs) in schools nationwide [4].

Higher education institutions (HEIs) were greatly affected by COVID-19. CHED enjoined HEIs and shifted from traditional learning to flexible learning. It organized massive capacity-building training for faculty members, launched the PHL CHED Connect website for free access to instructional learning materials, and provided grants to HEls for their projects related to flexible learning, among others. Under the Inter-Agency Task Force (IATF) on the Management of Emerging and Infectious Diseases and Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines, along with its amendments, the CHED and the Department of Health (DOH) jointly issued this Memorandum Circular. Additionally, this Joint Memorandum Circular (JMC) is cognizant of the mandates of Republic Act No. 11332, otherwise known as the Mandatory Reporting of Notifiable Diseases and Health Events of Public Health Concern Act, wherein public health authorities are given the statutory and regulatory authority to mandate response activities on the part of schools, which can include the regulation of physical classes, to control the further spread of infection, outbreaks, or epidemics and prevent re-occurrence. This issuance was intended to serve as a guide for HEIs that planned to hold limited face-to-face classes during the COVID-19 pandemic and were willing to take on the responsibility of reopening their campuses based on their ability to follow health and safety protocols, retrofit their facilities, and gain support from their stakeholders [5].

The Occupational Safety and Health Center (OSHC) has intensified its campaign to promote OSH among Bicolano workers. In a news article, the DOLE Regional Dir. Alvin Villamor mentioned that the agency's goal promote compliance with Republic Act (RA) 11058, otherwise known as an Act Strengthening Compliance with Occupational Safety and Health Standards, to raise awareness of the department’s programs and services. The office included this campaign in the conduct of DOLE training, seminars, and other activities with the participation of employers and workers to increase compliance with OSH standards and to establish a safety culture in the workplace as a commitment to the protection of the rights of workers as well as employers [6].

HEIs are as important as other workplace settings. As a nurse educator, the researcher felt the need to focus on this study because safety is important and needs to be approached creatively. A safe workplace is an efficient one. Keeping workers safe will improve employee morale, and employees will be more productive when they are happy with their jobs. Eliminating workplace hazards enables employees to stay invested in their work and do their best to teach and be productive every day. This research determined the OSH practices of HEIs

in Region V to assess their implementation of health and safety for the well-being of all employees.

Material and Methods

A. Design and Setting

This research used the descriptive–evaluative method. The respondents in this study were school administrators (SA) and teaching (T) and non-teaching (NT) personnel of selected HEIs in Region V who offer the Bachelor of Science in Nursing program with a total of 217 respondents and the challenges met in OSH practice. These institutions were chosen based on having a BSN program and being accredited institutions. The respondents were selected using a simple random technique.

B. Data Collection

Due to travel restrictions and work-from-home arrangements brought on by the pandemic, the researcher distributed the questionnaire electronically via Google Forms. The responses were automatically reflected on Google Sheets linked to Google Forms, which is downloadable.

C. Instruments

The questionnaire checklist and documentary analysis were the main instruments of this study to systematically, factually, and accurately determine the OSH practices of selected private HEIs in Region V. Through readings from various books and electronic materials from related literature, the Gawad Kaligtasan at Kalusugan (GKK) framework of the Department of Labor and Employment (DOLE) and RA 11058, otherwise known as an Act Strengthening Compliance with Occupational Safety and Health Standards and Providing Penalties for Violations Thereof, as well as the researcher's understanding of the subject, the questionnaire was conceptualized, of which one set was prepared for the respondents. The questionnaire was distributed after the HEI presidents granted permission to conduct the study [3].

Ten senior high school faculty members validated the questionnaire after thorough scrutiny by the research adviser. The criteria for validation were clarity of language, specificity of content, singleness of purpose, linguistic completeness and grammatical consistency, freedom from assumption, and freedom from suggestion. After the validation, suggestions, and recommendations were incorporated into the revision of the questionnaire.

Due to travel restrictions and work-from-home arrangements, the researcher distributed the questionnaire electronically via Google Forms. The responses were automatically reflected on Google Sheets, which is downloadable, as the basis for data analysis. The researcher was provided with a master list of employees, which was used to determine the sample size for each group of respondents.

D. Statistical Analysis

For a more suitable analysis and interpretation of the data, the responses were tallied and tabulated systematically according to the variables in this study. All the collected data was presented quantitatively in tables indicating frequencies, percentages, weighted mean, and significant relationships, wherein the verbal interpretation of the results was also discussed and included. The researcher used the percentage technique to describe the number of respondents and the challenges met in OSH practices among HEIs. The weighted mean was considered to analyze the responses of the respondents to the OSH practices of HEIs. Friedman's one-way ANOVA was utilized in this study to determine the differences in the appraisal of the stakeholders regarding the extent of OSH practices.

Results

OHS is concerned with safeguarding employees in the workplace against accidents, injuries, and toxic exposure. While accidents can occur at any moment, it is the employer's responsibility to ensure that precautions are taken to decrease the likelihood of mishaps and to maintain a safe working environment. The results are presented according to the extent of OSH practices of selected private HEIs in Region V, as appraised by stakeholders, significant differences in the appraisal of stakeholders, and the challenges met by HEIs while engaging in OSH practices.

A. Extent of Occupational Safety and Health Practices

The average weighted mean of all indicators, as rated by the stakeholders, was 3.93, which was verbally interpreted as highly practiced. Although all indicators were highly practiced, institutions were more aggressive in the use of Personal Protective Equipment and Safety Signage (4.07), followed by the Emergency Preparedness and Response Plan (4.05), commitment to complying with OSH requirements (3.94), recording and reporting (3.88), OSH personnel and facilities, safety and health promotion, and training and education (3.85).

B. Significant Difference in Stakeholder Appraisal

The critical value using the chi-square (x^2) table at the 0.05 level of significance when the degree of freedom was (df) = 2 was 5.991. The table reveals that all the computed values using Friedman two-way ANOVA were greater than $X^2_{0.05}$ = 5.991, which tends to reject the null hypothesis and accept the alternative hypotheses; therefore, there was a significant difference in the appraisal of the stakeholders about the extent of OSH practice.

Table 1. Summary of Extent of Practice of Occupational Safety and Health as Appraised by Stakeholders

Indicators	Average Weighted Mean		
	AWM	VI	R
Commitment to Comply with OSH Requirements	3.94	HP	3
Occupational Safety and Health Personnel and Facilities	3.85	HP	6
Safety and Health Promotion, Training and Education	3.85	HP	6
Recording and Reporting	3.88	HP	4
Use of PPE and Safety Signage	4.07	HP	1
Emergency Preparedness and Response Plan	4.05	HP	2
Waste Management System	3.88	HP	4
Average Weighted Mean	**3.93**	**HP**	

Thus, the three stakeholders had different appraisals of the OSH practices of their respective institutions. Teaching personnel, as the one with the highest evaluation, might be affected by the fact that they use different services and facilities more often compared to other employees.

Table 2. Significant Difference in the Appraisal of the Three Groups of Respondents about the Extent of Occupational Safety and Health Practices

Occupational Safety and Health Practices	Computed Value of Friedman Two-Way ANOVA (Fr)	Chi-Square (X^2) Tabular Value at 0.05	Decision on Null Hypothesis (Ho)	Verbal Interpretation
Commitment to Comply with OSH Requirements	7.60	5.991	Rejected Ho	Significant
Occupational Safety and Health Personnel and Facilities	16.80	5.991	Rejected Ho	Significant
Safety and Health Promotion, Training and Education	15.80	5.991	Rejected Ho	Significant
Recording and Reporting	7.60	5.991	Rejected Ho	Significant
Use of PPE and Safety Signage	10.33	5.991	Rejected Ho	Significant
Emergency Preparedness and Response Plan	11.14	5.991	Rejected Ho	Significant
Waste Management System	14.25	5.991	Rejected Ho	Significant

Table 3 shows that the null hypothesis must be tested if there is no significant difference in the appraisal of the three groups of respondents, namely, school administrators, teaching personnel, and non-teaching personnel in terms of the extent of OSH practices and challenges met by each private HEIs in Region V.

The critical value using the chi-square (x^2) table at the 0.05 level of significance when the degree of freedom was (df) = 2 was 5.991. The table reveals that all the computed values per institution using the Friedman two-way ANOVA were greater than $X^2_{0.05} = 5.99$. Therefore, the null hypothesis was rejected, which indicated that there was a significant difference in the appraisal of the respondents on the level of OSH practices per HEI.

Table 3. Test of Significant Difference in the Appraisal of the Three Groups of Respondents on the Extent of Occupational Safety and Health Practices per HEI

Occupational Safety and Health Practices	Computed Value of Friedman Two-Way ANOVA (Fr)	Chi-Square (X^2) Tabular Value at 0.05	Decision on Null Hypothesis (Ho)	Verbal Interpretation
School A	6	5.991	Rejected Ho	Significant
School B	10.28	5.991	Rejected Ho	Significant
School C	10.28	5.991	Rejected Ho	Significant
School D	11.14	5.991	Rejected Ho	Significant
School E	10.57	5.991	Rejected Ho	Significant
School F	11.14	5.991	Rejected Ho	Significant

C. Challenges in the Practice of OSH as Appraised by Stakeholders

The stakeholders of the different HEIs differed in their responses because they did not use the facilities or experience the service more frequently than others. This was one of the factors that affected their appraisals of OSH practice in their respective institutions. At the same time, this could be intertwined with the perceived benefits and barriers to the actions of the stakeholders, which were purely intrapersonal.

As shown in Table 4, HEIs rated the challenges as Less Experienced on average (AVM 2.58). However, regulations to ban and control dangerous products (2.77), adoption of OHS practices by demanding the protection of workers producing the goods that are sold in the global market (2.76), recurrent fluctuations for work and conflicting work demands, i.e., demands for high performance and tight deadlines (2.67), and absence of comprehensive institutional OHS policy (2.60) were moderately experienced by the stakeholders.

Table 4. Challenges in the Practice of OSH as Appraised by Stakeholders

Indicators	School Administrator			Teaching Personnel			Non-teaching Personnel			Average Weighted Mean		
	WM	VI	R	WM	VI	R	WM	VI	R	AWM	VI	R
Absence of comprehensive institutional OHS policy	2.32	LE	5	2.66	ME	4	2.82	LE	4	2.60	ME	4
Inadequate OHS infrastructures and OHS measures	2.04	LE	10	2.58	LE	6	2.80	ME	7.5	2.47	LE	9.5
Inadequate support from employers, employees, and government	2.08	LE	9	2.54	LE	7	2.78	ME	10	2.47	LE	9.5
Lack of awareness regarding OSH practices	2.17	LE	7	2.50	LE	10	2.86	ME	2	2.51	LE	6.5
Inadequate institutional funds for safety and health	2.13	LE	8	2.53	LE	8.5	2.82	ME	4	2.49	LE	8
Regulations to ban and control dangerous products	2.63	ME	2	2.88	ME	1	2.80	ME	7.5	2.77	ME	1
Absence of advocacy, position papers, public statements, technical	2.21	LE	6	2.53	LE	8.5	2.80	ME	7.5	2.51	LE	6.5

Indicators	School Administrator			Teaching Personnel			Non-teaching Personnel			Average Weighted Mean		
	WM	VI	R	WM	VI	R	WM	VI	R	AWM	VI	R
and ethical OSH guidelines												
Absence of research, education, and training of OHS professionals, workers, unions, and employers	2.33	LE	4	2.60	ME	5	2.82	ME	4	2.58	LE	5
Low public awareness of OSH	2.67	ME	1	2.69	ME	3	2.92	ME	1	2.76	ME	2
Recurrent fluctuations in the amount of work, and conflicting work demands	2.50	LE	3	2.72	ME	2	2.80	ME	7.5	2.67	ME	3
Average Weighted Mean	2.31	LE		2.62	ME		2.82	ME		2.58	LE	

Discussion

The researcher felt the need to focus on this study because safety is important and needs to be approached creatively. Keeping workers safe will improve employee morale, and when employees are happy with their jobs, they will be more productive. The purpose of this study was to determine the OSH practices of selected private HEIs in Region V.

The results of this study show that HEIs have a comprehensive system of OSH practices. This implies that HEIs recognize the importance of ensuring a healthy environment for a healthy workforce. As PACUCOA-accredited HEIs, these institutions are strongly dedicated to keeping their employees safe and healthy. Each school seeking accreditation is surveyed in terms of the appropriateness and adequacy of its philosophy and objectives and in terms of the degree and competence with which it achieves its goals. Involving employees in crafting different policies before their implementation and how they protect their employees from hazards are two of the areas being evaluated during accreditation. With this, HEIS must have a well-founded adherence to OSH.

The findings of this study corroborate those of several studies wherein the authors noted the necessity of having a safe and healthy working environment. In particular, a study expressed that key success factors in reducing death rates, accidents, and lost workdays involve various parties, including the public in policymaking, development of appropriate infrastructure and human resources, enforcement autonomy, focused job scope within departments, appropriate language usage, training inclusive of all forms of diversity at work, and appropriate penalties [7]-[10]. On the other hand, another study showed that managers' commitment to OSH had no significant effect on OSH performance but a significant positive effect on employees' safety awareness and competency, employees' involvement in OSH, and reporting culture [11].

Similar to the findings of the study, another author discovered that water, power, and Wi-Fi are the most important facilities influencing employee productivity. Subsequently,

having adequate facilities not only protects workers from hazards but also increases worker's productivity. Teaching and non-teaching personnel may need time for self-care between breaks. With the facilities in place, they will become more encouraged to go to work because they know that they can still attend to their necessities while at school [12][13]. A study conducted in Turkey [14] stressed the need to introduce OSH and risk education into school curricula. It is indeed revealed in the study that OSH education improved the student's awareness particularly their knowledge level after regular OSH education.

A study reported the importance of a systematic reporting and recording system. Records and reports support openness and transparency by documenting and providing evidence of the incidents that happened in the institution and its management. Records support quality programs and services, serve as references in decision-making, and provide inputs in achieving organizational goals [15][16].

Another finding of the study is that in terms of the use of PPE and signage, the HEI properly executes this area. Due to the COVID-19 pandemic, the use of PPE, such as masks, face shields, etc., shifted from healthcare personnel to all workers. It plays a large part in keeping facilities compliant and employees knowledgeable. A study conducted in Malaysia disclosed that to improve compliance with the use of PPE on construction sites, strategies such as providing safety training and imposing fines on workers who fail to comply with PPE usage should be implemented. Therefore, when employees understand why a policy exists, they are considerably likelier to follow it. Moreover, as a requirement for limited face-to-face modality, HEIs are required to disseminate valuable information regarding COVID-19 in conspicuous places [17].

A study exploring how safety posters affect perceptions of safety cultures stated that the rate of workplace accidents and injuries has been proven to be influenced by safety culture, with more favorable safety cultures leading to lower rates of accidents and injuries. The inclusion of safety posters substantially raised participant assessments of safety culture [18]. It is, therefore, relevant that institutions have safety signage to improve safety awareness and uplift safety culture [19]. In addition, previous research has discovered that television and social media sites are the primary sources of emergency information for respondents [20].

The study also revealed that there is a significant difference in the appraisal of the stakeholders at the level of the extent of OSH practice. However, even though they have the same verbal interpretation, which is highly practiced, it has been interpreted that teaching personnel have the highest evaluation compared with administrators and non-teaching personnel. A study conducted in 2019 stated that HEIs are often seen as havens, safe havens where young people may explore great ideas in a collegial setting, form lasting connections,

and discover new things. The kind of institution, number of programs, and number of staff are the detected factors that have significant relationships with safety management practices among the recognized profiles of HEIs [21]. Therefore, it can be concluded that various factors can affect the appraisals of stakeholders. However, this study did not focus on those factors but on the extent of OSH practices in HEIs. Thus, further research should be done on HEIs in Region V to discover these factors. Academic safety standards should be developed by the national government to address the gaps in the OSH practices of HEIs and to promote ongoing improvement in maintaining a safe environment to achieve the mission vision of HEIs in providing excellent education.

The study shows that there is a significant difference in the appraisal of the respondents on the level of OSH practices. This is similar to the findings of a previous study that showed disparities among stakeholders in OSH are mostly in governance. Lack of a dedicated national agency that will oversee all OHS initiatives across industries and sectors, inadequate awareness of the OHS mandate of some agencies, unclear delineation of roles and responsibilities among stakeholders, poor coordination among government agencies, and poor enforcement of OHS legislations. Although OSH is a shared responsibility of the stakeholders, OSH practices are primarily dependent on governance, especially in establishing proactive systems to manage health and safety [22]-[24]. It is, therefore, important that top management be more assertive in implementing OSH in their workplaces by creating standards, mechanisms, and protocols to maintain OSH.

Another finding of this study implies that among OSH practices, HEIs are still experiencing different challenges in sustaining their institutional safety and health. As private HEIs, they rated inadequate support from the government as a highly experienced challenge. In the Philippines, private schools are not well funded by the government, although subsidies are given for student scholarships. They mainly get their funds from the tuition fees of the students. This might be the main reason that stakeholders perceive this as the top challenge.

A study from Uganda stated that previous OSH regulations were mainly out of date when compared to modern workplace demands. Gaps in the legislative framework, low public knowledge of OSH, inadequate planning, and insufficient human capability, transparency, and accountability are all obstacles to implementation. Therefore, there must be a strong legislative framework with consultation with employees to manifest transparency and OSH awareness programs [25].

Conclusion

Based on the findings of the study, it is possible to conclude that OSH practices are high in the six selected HEIs in Region V. There was a significant difference in the appraisal of the stakeholders, even if they rated the indicators as highly practiced. The challenges cited are

least experienced by the stakeholders, specifically, regulations to ban and control dangerous products, low public awareness of OSH, recurrent fluctuations in the amount of work, and conflicting work demands. There is a need to consult employees in policy formulation to increase participation. Having adequate facilities not only protects workers from hazards but also increases workers' productivity. Safe and adequate facilities are needed to encourage students to go to work because they know that they can still attend to their necessities while at school. Staff require information and training to operate safely without putting their health at risk. There is a need for comprehensive recording and reporting to identify future risks and ensure health and safety are managed accordingly. HEIs should enforce PPE standards daily. Regular emergency training shall ensure readiness and safe workplace occupancy in the event of natural and anthropogenic hazards. Institutional safety standards should be developed by the respective HEIs to address the gaps in OSH practices. Such shall provide a framework and a master plan for responding to emergencies and preparing for future risks.

Recommendations

There is a need to consult employees in policy formulation to increase participation. Having adequate facilities does not only protect workers from hazards but it also increases worker's productivity. Safe and adequate facilities are needed to encourage them to go to work because they know that they can still attend to their necessities while at school. Staff require information and training to operate safely without putting their health at risk. There is a need for comprehensive recording and reporting to identify future risks and ensure health and safety are managed accordingly. HEIs should enforce PPE standards daily. Regular emergency training shall ensure readiness and safe workplace occupancy in the event of natural and anthropogenic hazards.

Institutional Safety Standards should be developed by the respective HEIs to address the gaps on the practices on the OSH. Such shall provide framework and a master plan in responding to emergency situations and preparing for the future risks. The top management should take the lead in the promotion and dissemination of safe practices towards the attainment of a healthy and sound workplaces for its workers.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

[1] A. Smith, "Alcohol, Smoking, Wellbeing and Health and Safety of Workers," *Journal of Health and Medical Sciences*, vol. 2, no. 4, 2019.

[2] Joint ILO/UNESCO Committee of Experts on the Application of the Recommendations Concerning Teaching Personnel (CEART), "Teaching Personnel," Oct. 2018. [Online]. Available: www.ilo.org/global/industries-and-sectors/education/ceart/lang--en/index.htm.

[3] Department of Labor and Employment Philippines, *Occupational Safety and Health Standards. As Amended*, Occupational Safety and Health Center, 1989.
[4] National Disaster Risk Reduction Management Office, *National Risk Reduction Management Plan 2020–2030*, Office of Civil Defense – Policy Development and Planning Service (OCD – PDPS), 2020.
[5] Commission on Higher Education and Department of Health, *Guidelines on the Gradual Reopening of Campuses of Higher Education Institutions for Limited Face-to-Face Classes during the COVID-19 Pandemic*, The Philippines, 2021. [Online]. Available: Guidelines-on-the-Gradual-Reopening-of-Campuses.pdf (pacu.org.ph).
[6] S. Oh, "Legal Discussions and Issues Surrounding the Guarantee of Fundamental Labor Rights in the ILO Occupational Safety and Health Field," *Labor Law Research*, vol. 50, pp. 37–79, 2021.
[7] L. Surienty, "OSH Implementation in SMEs in Malaysia: The Role of Management Practices and Legislation," in *Proc. 20th Congr. Int. Ergonomics Assoc. (IEA 2018) Volume II: Safety and Health, Slips, Trips and Falls 20*, Springer International Publishing, 2019.
[8] J. Zara, S. M. Nordin, and A. S. N. Isha, "Influence of communication determinants on safety commitment in a high-risk workplace: a systematic literature review of four communication dimensions," *Frontiers in Public Health*, vol. 11, 2023, Art. no. 1225995.
[9] P. T. Bushnell, R. Pana-Cryan, J. Howard, B. Quay, and T. K. Ray, "Measuring the benefits of occupational safety and health research with economic metrics: Insights from the National Institute for Occupational Safety and Health," *American Journal of Industrial Medicine*, vol. 65, no. 5, pp. 323-342, 2022.
[10] R. Kunodzia, "Analysis of factors affecting the implementation of health and safety management systems in the South African construction industry within the Western Cape," Doctoral dissertation, Cape Peninsula University of Technology, 2023.
[11] Ö. Ünal, et al., "The Role of the Human Factor in Occupational Safety and Health Performance," *International Journal of Occupational Safety and Ergonomics*, vol. 27, no. 1, pp. 179–184, 2021.
[12] D. Rosner and G. Markowitz, "A Short History of Occupational Safety and Health in the United States," *American Journal of Public Health*, vol. 110, no. 5, pp. 622–628, 2020.
[13] S. Rahmelia, O. Haloho, F. D. Pongoh, and B. Purwantoro, "Building an Environment That Motivates Education Sustainability in Tumbang Habaon Village, Gunung Mas, Central Kalimantan Province, During Pandemic through Participatory Action Research between Parents, Schools and Church," *Engagement: Jurnal Pengabdian Kepada Masyarakat*, vol. 6, no. 1, pp. 204-220, 2022.
[14] O. Şenkal, et al., "Occupational Health and Safety Education at Inclusive Vocational Schools in Turkey," *Sage Open*, vol. 11, no. 4, Art. no. 21582440211067239, 2021.
[15] R. Boucaut and L. Knobben, "Occupational Health and Safety Incidents at a University School of Nursing: A Retrospective, Descriptive Appraisal," *Nurse Education in Practice*, vol. 44, p. 102776, 2020.
[16] R. Touray, "A review of records management in organisations," *Open Access Library Journal*, vol. 8, no. 12, pp. 1-23, 2021.
[17] L. T. Bruno, C. T. Low, and J. Idiake, "Compliance with the Use of Personal Protective Equipment (PPE) on Construction Sites in Johor, Malaysia," *International Journal of Real Estate Studies*, vol. 14, no. 1, pp. 123-138, 2020.
[18] B. MacLaren, et al., "Understanding How Safety Posters Affect Perception of Safety Culture Using Virtual Reality," in *IIE Annual Conference Proceedings*, Institute of Industrial and Systems Engineers (IISE), 2021.
[19] I. M. Nasrallah, A. K. El Kak, L. A. Ismaiil, R. R. Nasr, and W. T. Bawab, "Prevalence of accident occurrence among scientific laboratory workers of the public university in Lebanon and the impact of safety measures," *Safety and Health at Work*, vol. 13, no. 2, pp. 155-162, 2022.
[20] G. S. Subia, G. P. Mangiduyos, and J. B. D. Turgano, "Emergency Preparedness of Novo Ecijanos," *Open Journal of Social Sciences*, vol. 8, no. 3, pp. 17, 2020.
[21] M. J. J. Gumasing and Z. B. Sasot, "An Occupational Risk Analysis of Garbage Collection Tasks in the Philippines," in *2019 IEEE 6th International Conference on Industrial Engineering and Applications (ICIEA)*, Tokyo, Japan, 2019, pp. 408-413.
[22] D. Evans, "Managing Occupational Health and Safety on Queensland Government Building Projects–A Management Systems Approach," *Workplace Health and Safety Queensland*, pp. 5-8, 2021.
[23] F. Blanc, G. Ottimofiore, and K. Myers, "From OSH regulation to safety results: Using behavioral insights and a 'supply chain' approach to improve outcomes–The experience of the health and safety Executive," *Safety Science*, vol. 145, Art. no. 105491, 2022.

[24] M. A. Ismail, O. G. Alghamdi, M. H. D. Alotaibi, W. A. B. A. ALTAMIMI, M. M. Alotaibi, A. M. Alotibi, ... and A. M. A. R. M. Al, "Management Strategies for Occupational Health and Safety During Prevention Intervention Development," *Journal of Ecohumanism*, vol. 3, no. 8, pp. 13468-13476, 2024.
[25] E. Atusingwize, et al., "Occupational Safety and Health Regulations and Implementation Challenges in Uganda," *Archives of Environmental & Occupational Health*, vol. 74, no. 1–2, pp. 58–65, 2019.

Authors



Lorraine Turiano is an Assistant Professor at King Khalid University, College of Nursing, Saudi Arabia under the Maternity and Neonatal Nursing Department. As an educator, she is very much interested in Public Health, Artificial Intelligence and at the same time New Pedagogical Approaches. (email: estadilla@kku.edu.sa).