Proceedings Series on Health & Medical Sciences, Volume 8
Proceedings of the 6th International Nursing and Health Sciences Universitas Muhammadiyah Purwokerto
ISSN: 2808-1021

Knowledge and Practices on Environmental Health and Safety Among Garbage Collectors in Talavera, Nueva Ecija

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ARTICLE INFO

Article history:

DOI:
10.30595/pshms.v8i.2059

Submitted:
July 29, 2025

Accepted:
Sept 22, 2025

Published:
Oct 23, 2025

Keywords:

environmental health;
occupational health;
knowledge and practice

ABSTRACT

Municipal solid waste handlers play an essential role in keeping urban areas clean and sanitary. However, due to the nature of their work, they are often exposed to various hazards, health concerns, and potential accidents caused by direct contact with waste materials, harmful emissions, and improper use of equipment. This study aimed to assess the knowledge and practices of garbage collectors regarding environmental health and safety, as well as to identify factors that hinder the proper implementation of waste management practices. A descriptive-correlational research design was employed, and data were collected through a survey involving 46 municipal solid waste handlers selected using the total sampling method. The questionnaire focused on their awareness and practices related to occupational safety and health hazards. Statistical tools such as mean and correlation tests were utilized to determine relationships between the variables. Findings revealed that most respondents (52.17%) were aged 31–40, while 32.61% had 4–6 years of experience and 21.74% had over 10 years. A majority (65.21%) had attained only elementary education, which may affect their understanding of safety protocols. Alarmingly, 91.30% were unvaccinated against hepatitis B, indicating a lack of preventive health measures. The study concludes that limited education, inadequate training, and insufficient health protection expose waste handlers to serious occupational safety risks.

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1. INTRODUCTION

The rate of waste generation continues to rise worldwide due to rapid urbanization, industrialization, and population growth. In 2020, an estimated 2.24 billion tonnes of solid waste were generated globally, equivalent to 0.79 kilograms per person per day. This figure is projected to increase by 73%, reaching 3.88 billion tonnes by 2050 if current trends persist (The World Bank, 2022).

Such growth in waste production poses significant environmental and public health challenges, particularly in developing countries with inadequate waste management systems. In the Philippines, a rapidly

urbanizing nation with a growing population and dynamic economy, waste generation continues to rise (World Bank, 2020). Coracero et al. (2021) reported that the volume of waste in the country is steadily increasing and is expected to grow further in the coming years. Challenges such as limited sanitary landfills, weak enforcement of laws, and improper waste disposal practices remain. Republic Act No. 9003, or the *Ecological Solid Waste Management Act of 2000*, provides a framework for proper waste segregation, collection, transport, and disposal, defining solid waste as discarded materials from households, businesses, non-hazardous institutions, industrial sources, construction debris, and agricultural waste.

Despite these regulations, municipal solid waste management remains a hazardous occupation. Waste handlers, responsible for collecting, sorting, and disposing of waste, are exposed to numerous health risks due to the nature of garbage, emissions from materials, and inadequate protective equipment (Onoja-Alexander et al., 2020; Nasufi et al., 2019). Studies report that waste collectors commonly experience back pain, respiratory infections, cuts from sharp objects, skin irritation, and stress-related conditions such as anxiety or depression (Lissah et al., 2022), while lack of proper personal protective equipment further increases their vulnerability (Tshivhase et al., 2022). In municipalities where waste management is performed manually, such as Talavera, Nueva Ecija, these hazards are particularly pronounced.

Although previous studies have documented the health risks faced by waste collectors, there is limited research assessing their knowledge and practices regarding environmental health and safety, especially among garbage collectors in Talavera, Nueva Ecija. This gap hinders the development of effective training programs, preventive measures, and policy interventions. Therefore, this study aims to identify gaps in knowledge and practices among garbage collectors, evaluate their awareness of occupational health risks, assess their waste-handling practices, and provide recommendations for training, safety measures, and immunization initiatives to improve occupational health and safety.

2. RESEARCH METHOD

This study was conducted using a quantitative descriptive-correlational design to assess the knowledge and practices of garbage collectors regarding environmental health and safety in Talavera, Nueva Ecija. Descriptive-correlational research, a type of quantitative method, focuses on examining and analyzing the relationships between two or more variables without altering them, enabling researchers to identify patterns and trends in the data (Bhat, 2023).

The study population included all 46 municipal garbage collectors, and total sampling was used to cover the entire population, ensuring comprehensive representation and minimizing sampling bias (Sugiyono, 2017; 2020). Data were collected using a self-made, close-ended questionnaire divided into three sections: demographic profile, knowledge of environmental health and safety, and occupational practices, with responses measured on a 4-point Likert scale.

The instrument was reviewed and validated by five experts, including nurses, psychometricians, and a pollution officer, and a pilot test with 15 respondents was conducted in Cabanatuan City. Reliability was confirmed using Cronbach's Alpha, producing 0.868 for knowledge and 0.823 for practices, indicating good internal consistency.

The questionnaire was delivered face-to-face with English and Tagalog translations, and respondents were informed about the study objectives, provided informed consent, and assured of anonymity, while ethical approval was secured from the College of Nursing authorities. Data were analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations) to summarize profiles, knowledge, and practices, and correlation analysis was performed to determine significant relationships between demographic factors and respondents' knowledge and practices, providing a systematic evaluation of environmental health and safety conditions among the garbage collectors.

3. RESULT AND DISCUSSIONS

This chapter presents and interprets the results of the quantitative data analysis, including the development of the questionnaire, the gathered responses, and the corresponding analysis of the research findings. The results reflect the responses of respondents from Talavera, Nueva Ecija, collected through questionnaires. The data are organized in tabular form, aligned with the specific research questions outlined in the statement of the problem.

Demographic Profile

The demographic profile of respondents revealed that the majority of garbage collectors were aged 31–40 years, comprising 52.17% of the sample, with smaller proportions in older age groups. Most had 4–6 years of work experience, while only a few had less than a year or more than ten years in the profession. Educational attainment was generally low, with most respondents reaching only elementary levels, and vaccination coverage was critically insufficient, as over 91% were unvaccinated. This profile indicates a workforce that, although experienced, faces substantial socio-economic and health vulnerabilities. These findings are consistent with prior studies indicating that while experience may foster hazard awareness, formal education and preventive healthcare are crucial for competency and protection against occupational hazards (Uhunamure et al., 2021; Haas et al., 2019; Ketema et al., 2023).

Knowledge on Environmental Health and Safety

Table 1.Respondents' Knowledge on Environmental Health and Safety: Knowledge Inquiry

Knowledge Inquiry	Mean	SD	Verbal Description
1. I understand the environmental risks associated with garbage collection.	3.20	0.65	Agree
2. I regularly seek information on safety protocols related to garbage collection.	2.87	0.50	Agree
3. I understand the health and safety consequences of improper garbage disposal.	3.00	0.60	Agree
4. I have knowledge of health hazards associated with exposure to waste materials.	2.96	0.59	Agree
5. I have knowledge about government policies on waste management safety.	3.20	0.65	Agree
Grand Mean	3.04	0.39	Agree

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

The table presented the knowledge of environmental health and safety among garbage collectors in Talavera, Nueva Ecija. The assessment of knowledge inquiry among garbage collectors in Talavera, Nueva Ecija, highlights a foundational understanding of environmental health and safety, particularly regarding workplace hazards and regulatory guidelines. A notable strength is that respondents demonstrate awareness that can serve as a starting point for enhancing practical safety measures. However, gaps remain in translating knowledge into proactive behaviors, such as regularly updating themselves on safety protocols or adapting practices to specific risks. These gaps appear linked to limited access to resources, insufficient training, and institutional constraints, which are consistent with prior research indicating that awareness alone does not ensure compliance with safety standards (Shrestha, 2019; Ngwira et al., 2024; Sealim et al., 2023). Strengthening targeted, context-sensitive interventions such as hands-on training and workplace support an help bridge the gap between knowledge and practice, ensuring that awareness effectively contributes to safer work behaviors.

Table 1.1 Respondents' Knowledge on Environmental Health and Safety: Synthesis

Synthesis	Mean	SD	Verbal Description
1. I understand how environmental health knowledge impacts my safety at work.	3.20	0.54	Agree
2. I clearly understand the risks involved in garbage collection.	2.89	0.64	Agree
3. I gather and use information from various sources to enhance garbage collection safety practices.	2.74	0.61	Agree
4. I can explain the importance of environmental safety to my co-workers.	2.65	0.77	Agree
5. I have the capacity to recognize the risks of garbage collection and its potential occurrence in my work environment.	2.91	0.66	Agree
Grand Mean	2.88	0.41	Agree

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

The evaluation of knowledge synthesis indicates that garbage collectors can connect their understanding of environmental health and safety to workplace practices, demonstrating a capacity to recognize risks and share safety information with colleagues. A key strength lies in their ability to integrate knowledge from various sources,

which provides a foundation for informed decision-making on the job. Nevertheless, the study identified gaps in fully applying this knowledge, often due to limited access to training materials, inconsistent guidance, or insufficient institutional support. This reflects findings in previous research, where knowledge translation was hindered by structural and resource barriers (Almasi et al., 2019; Ngwira et al., 2024). Enhancing synthesis skills through continuous, practical training and mentorship could improve the ability of workers to convert knowledge into consistent, safe practices.

Table 1.2. Respondents' Knowledge on Environmental Health and Safety: Product Tools

Product tools	Mean	SD	Verbal Description
1. I properly use personal protective equipment (PPE) during collection to minimize health risks.	3.13	0.54	Agree
2. I have familiarity with the garbage collection practices that ensure safety.	3.22	0.63	Agree
3. I understand how to properly use garbage collection equipment to ensure safety while handling waste	2.89	0.64	Agree
4. I sanitize garbage collection tools before and after use to minimize exposure to harmful substances	2.91	0.85	Agree
5. I ensure my tools are in good condition to avoid accidents during garbage collection.	2.96	0.73	Agree
Grand Mean	3.02	0.46	Agree

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

This table indicates that garbage collectors generally recognize the importance of properly using and maintaining safety equipment and collection tools, which contributes to their occupational safety. The strength of this subcategory lies in their awareness that personal protective equipment (PPE) and well-maintained tools are essential for minimizing health risks. However, the moderate variation in responses suggests differences in access, familiarity, or consistent use of these tools among individuals. This finding aligns with previous research showing that awareness alone does not ensure consistent compliance, often due to limited resources or inadequate training (Shrestha, 2019). Enhancing access to PPE, providing clear instructions, and conducting practical demonstrations can help bridge these gaps, improving both knowledge and safe practices in the workplace.

Table 1.3. *Respondents' Knowledge on Environmental Health and Safety: Tailoring Knowledge*

Tailoring Knowledge	Mean	SD	Verbal Description
1. I apply learned safety practices in garbage collection at work.	3.02	0.58	Agree
2. I change my safety practices on garbage collection according to the local environmental risks.	2.67	0.67	Agree
3. I always wear personal protective equipment (e.g., gloves, rubber boots, masks) while collecting garbage.	3.22	0.59	Agree
4. I consider community-specific health risks such as acquiring communicable diseases when following safety protocols on garbage collection.	2.65	0.60	Agree
5. I actively improve my safety practices on garbage collection depending on current knowledge.	2.76	0.74	Agree
Grand Mean	2.87	0.40	Agree

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

The assessment of tailoring knowledge reflects that garbage collectors attempt to adjust their safety practices based on local risks and current knowledge. A major strength is their willingness to consider environmental and community-specific hazards when applying safety protocols, which demonstrates adaptability. However, variations in the application of tailored practices reveal limitations in resources, training opportunities, and institutional reinforcement. Prior studies suggest that effective adaptation of safety knowledge is closely linked to decision-making skills and access to targeted training (Sealim et al., 2023). Focusing on context-specific training programs and ongoing support could empower workers to consistently implement tailored safety measures, ultimately improving occupational health outcomes.

Practice on Environmental Health and Safety

Table 2 Respondents' Practices on Environmental Health and Safety : Identification of Problems

Identification of Problems	Mean	SD	Verbal Description
1. I can identify health and safety risk in my work environment.	2.80	0.75	Agree
2. I report safety issues when I encounter them at work	2.65	0.64	Agree
3. I recognize common injuries related to waste collection.	3.20	0.58	Agree
4. I record incidents and potential hazards in my workplace.	2.48	0.69	Agree
5. I can recognize environmental factors that contribute to workplace risks	2.72	0.50	Agree
Grand Mean	2.77	0.37	Agree

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

This table showed the garbage collectors' practices in identifying environmental health and safety problems. The overall grand mean of 2.77 (SD = 0.50) indicated moderate awareness of safety practices.

Specifically, Item 3, "I recognize common injuries related to waste collection," had the highest mean score of 3.20 (SD = 0.58), showing a strong understanding of common injuries and aligning with Esmael Oumer et al. (2024), who emphasized that recognizing work hazards is essential for safety. Cole (2019) also noted that training employees in competencies reduces injuries and strengthens safety culture.

However, item 4, "I record incidents and potential hazards in my workplace," received a lower mean of 2.48 (SD = 0.69), highlighting a gap in documenting workplace incidents. Lynch (2023) stressed that incident reporting is crucial for identifying risks and preventing accidents. Kyung et al. (2023) found that underreporting often occurs due to fear, complicated processes, lack of awareness, perception of minor injuries, or distrust in reporting outcomes. This suggests an urgent need to improve documentation practices among garbage collectors.

The remaining items, including identifying health and safety risks (item 1, M = 2.80, SD = 0.75), reporting safety issues (item 2, M = 2.65, SD = 0.64), and recognizing environmental factors contributing to workplace risks (item 5, M = 2.72, SD = 0.50), also fell within the "Agree" range. This indicated moderate awareness but showed room for improvement, particularly in consistently applying safety practices.

Bernal et al. (2024) noted that theoretical knowledge of safety is often not applied in practice. Therefore, enhancing garbage collectors' practices in Talavera, Nueva Ecija, requires simplifying reporting processes, providing continuous training, fostering a safety-conscious culture, ensuring adequate PPE, and addressing workload concerns to better translate safety knowledge into practice.

Table 2.1 Respondents' Practices on Environmental Health and Safety: Sustenance of Knowledge Use

Sustenance of Knowledge Use	Mean	SD	Verbal Description
1. I consistently follow the safety practices I have learned.	3.20	0.58	Agree
2. I encourage my colleagues to follow proper safety practices at work.	3.04	0.63	Agree
3. I regularly review safety protocols to ensure compliance.	2.89	0.48	Agree
4. I maintain a list of safety precautions to follow at work.	2.04	0.67	Agree
5. I ask experts or supervisors for help to strengthen my knowledge on garbage collection.	3.04	0.73	Agree
Grand Mean	2.84	0.37	Agree

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree;1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

Garbage collectors demonstrated consistent efforts to maintain safety practices and to encourage their colleagues, reflecting a collaborative and safety-conscious work culture. The strength of this subcategory lies in their commitment to following established guidelines and seeking expert guidance, indicating proactive engagement in workplace safety. However, gaps were noted in reviewing safety protocols and maintaining organized lists of precautions, suggesting that knowledge retention and systematic application are not fully optimized. These findings align with literature highlighting that reinforcement and structured support are essential to bridge the gap between safety knowledge and consistent practice (Esmael Oumer et al., 2024; Shabani et al., 2023). Enhancing refresher trainings and implementing formal documentation practices could further sustain knowledge use and improve compliance. Overall, the results underscore the importance of structured training programs, reinforcement of safety measures, and supportive policies. Integrating occupational health and safety education has been shown to improve compliance and reduce injuries (Shabani et al., 2023), while immunization and workplace health promotion can help mitigate risks such as HBV infection among waste collectors (Mengiste

et al., 2021). Policymakers and local government units are therefore encouraged to invest in continuous education, safety initiatives, and supportive workplace environments to enhance the well-being of garbage collectors.

Table 2.2 Respondents' Practices on Environmental Health and Safety: Evaluation of Outcomes

Evaluation of Outcomes	Mean	SD	Verbal Description
1. I reflect on the benefits of safety protocols after implementation.	2.85	0.60	Agree
2. I reflect on how well I followed safety practices in my work.	2.85	0.63	Agree
3. I monitor the impact of safety protocols on my overall health.	2.91	0.63	Agree
4. I discuss the results of safety implementations with my team.	2.87	0.75	Agree
5. I change my practices based on feedback or what I observe.	2.50	0.81	Agree
Grand Mean	2.80	0.44	Agree

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

Respondents moderately reflected on the effectiveness of safety practices and their personal adherence, showing awareness of the benefits of evaluation and feedback. A key strength was the willingness to monitor outcomes and discuss results with team members, highlighting the potential for continuous improvement. Nonetheless, the lowest engagement was seen in modifying behaviors based on observations or feedback, indicating challenges in translating reflection into actionable change. Similar findings in occupational health literature point to the need for structured monitoring and feedback mechanisms to improve adaptive safety behavior (Degavi et al., 2021). Implementing regular performance reviews and guided reflection sessions could help workers translate evaluation into improved practices.

Table 2.3 Respondents' Practices on Environmental Health and Safety: Adapting of Knowledge to Local Context

Adapting of Knowledge to Local Context	Mean	SD	Verbal Description
1. I consult with my colleagues when there are newly implemented safety practices that I do not understand fully.	3.04	0.70	Agree
2. I ensure my safety practices address specific challenges in my area.	2.80	0.54	Agree
3. I adjust to the cultural practices that affect waste collection in my area.	2.63	0.61	Agree
4. I adjust practices based on seasonal environmental risks.	2.93	0.68	Agree
5. I collaborate with others to adjust safety measures to our area.	2.98	0.75	Agree
Grand Mean	2.88	0.39	Agree

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

Garbage collectors generally demonstrated adaptability by consulting colleagues and adjusting practices to address specific local challenges. This subcategory's strength lies in collaboration and responsiveness to contextual risks, which fosters safer and more practical work practices. However, the lower consideration of cultural factors indicates limited integration of local social norms into safety behaviors, a gap also noted in studies among informal waste collectors in Ghana (Akyen et al., 2025). Targeted interventions that incorporate cultural sensitivity into safety training can enhance practical application and acceptance of safety protocols in diverse work environments.

Overall, the results emphasized the need for culturally responsive training, along with skills, knowledge, and protective equipment, to help garbage collectors integrate both safety protocols and cultural practices for improved safety and well-being.

Table 2.4 Respondents' Practices on Environmental Health and Safety: Assessment of Barriers to Knowledge Use

Assessment of Barriers to Knowledge Use	Mean	SD	Verbal Description
1. I identify challenges that prevent me from using safety knowledge.	3.02	0.45	Agree
2. I overcome challenges to practicing environmental health and safety.	2.96	0.63	Agree
3. I ask for resources that help me follow safety rules.	3.04	0.59	Agree
4. I communicate barriers to safety with my supervisors.	2.78	0.59	Agree
5. I look for creative ways to solve problems in my work environment.	2.85	0.60	Agree
Grand Mean	2.93	0.34	Agree

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

Respondents were aware of challenges hindering the application of safety knowledge and actively sought solutions, reflecting a problem-solving mindset and motivation to improve workplace safety. The strength in this area is the proactive identification of barriers and resource-seeking behavior. However, communication with supervisors scored lower, suggesting gaps in upward reporting and advocacy for safer working conditions. These findings aligned with Lissah et al. (2022), who identified poor working conditions and lack of training as major barriers to applying safety knowledge. They also emphasized that open communication between workers and supervisors is crucial for improving occupational safety. While garbage collectors acknowledged these challenges, continued efforts in providing resources, fostering communication, and encouraging problem-solving were essential to strengthen adherence to safety practices.

Table 2.5 Respondents' Practices on Environmental Health and Safety: Selection, Tailoring, and Implementation of Interventions

Selection, Tailoring, and Implementation of Interventions	Mean	SD	Verbal Description
1. I consult with my supervisors about the improvement of safety measures to manage risks.	3.11	0.64	Agree
2. I choose to emphasize safety measures that suit my particular work environment.	2.83	0.61	Agree
3. I participate in training to learn how to implement safety measures.	2.72	0.78	Agree
4. I consult with my colleagues when there are newly implemented safety practices that I do not understand fully.	2.85	0.73	Agree
5. I follow step-by-step processes when applying new safety methods.	2.91	0.55	Agree
Grand Mean	2.88	0.41	Agree

Legend:3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

Garbage collectors demonstrated active engagement with supervisors and colleagues when implementing safety interventions, reflecting a collaborative work culture and an understanding of structured risk management strategies. Their strength lies in the ability to make context-sensitive decisions and adapt safety measures to the specific conditions of their work environment. Despite this, participation in formal safety training was relatively low, suggesting challenges such as limited access, scheduling difficulties, or resource constraints that may impede

skill development and consistent application of safety practices. These findings are consistent with previous studies emphasizing that continuous training and clear, structured procedures are critical for improving compliance and ensuring the effective implementation of safety interventions (Tasnova & Rafizul, 2024; Patel et al., 2024). Addressing barriers to training and providing practical, hands-on guidance can strengthen both the application of knowledge and overall occupational safety, enabling garbage collectors to better protect themselves while performing their duties.

Table 2.6 Respondents' Practices on Environmental Health and Safety: Monitoring Knowledge Use

Monitoring Knowledge Use	Mean	SD	Verbal Description
1. I regularly assess if I am following safety protocols correctly.	3.09	0.56	Agree
2. I monitor how my teammates follow safety practices.	2.87	0.65	Agree
3. I document changes in my safety practices over time.	2.22	0.76	Disagree
4. I share insights on safety practices during team meetings.	2.78	0.73	Agree
5. I use feedback from others to improve my safety monitoring processes.	3.00	0.60	Agree
Grand Mean	2.79	0.33	Agree

Legend:3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

Respondents generally demonstrated active monitoring of safety protocol adherence and shared insights with their teammates, reflecting a strong sense of accountability and collaborative oversight. The primary strength in this subcategory is their engagement with peer monitoring and the use of feedback to improve practices, indicating proactive involvement in maintaining workplace safety. However, formal documentation of changes in safety practices was notably lacking, highlighting a gap in systematic record-keeping that is essential for tracking progress, evaluating interventions, and guiding future improvements. Similar challenges have been observed among waste collectors in the Philippines and Ethiopia (Gumasing & Sasot, 2019; Tadesse et al., 2022), underscoring that without structured monitoring and documentation systems, efforts to enhance occupational health and safety may be limited. Addressing this gap through proper record-keeping protocols, supportive supervision, and continuous feedback can strengthen accountability and improve overall safety outcomes among garbage collectors.

Correlation Between Respondents' Profile and Their Knowledge and Practices on Environmental Health and Safety

Table 3. Correlation Analysis Results Between Respondents' Profile and Their Knowledge and Practices on Environmental Health and Safety

Profile Variable	Knowledge		Practices	
	Correlation Coefficient	p-value	Correlation Coefficient	p-value
Age$_b$	-0.014	0.926	-0.088	0.559
Years of Experience	-0.026	0.861	-0.002	0.992
Educational Attainment$_b$	0.213	0.155	0.163	0.279
Vaccination Status$_a$	-0.023	0.880	-0.044	0.769

Legend:a=Pearson r b=Spearman

To address the fourth objective of the study, the respondents' profile, and their knowledge and practices on environmental health and safety were gathered and analyzed.

Table 3 showed the results of the statistical treatment for this objective.

Correlation Analysis was performed utilizing Pearson product-moment correlation coefficient for profile variables treated as dichotomous such as vaccination status, and Spearman's rank correlation coefficient for treated ordinal level profile variables age, years of experience and highest educational attainment to determine significant relationship between the respondents' profile and their knowledge and practices.

The correlation analysis results in Table 5 showed no statistically significant relationships between the garbage collectors' profile variables and their knowledge and practices on environmental health and safety. Age and years of experience had negligible and non-significant correlations with both knowledge (rho = -0.014, p = 0.926; rho = -0.026, p = 0.861) and practices (rho = -0.088, p = 0.559; rho = -0.002, p = 0.992). This suggested that knowledge and practices on environmental health and safety did not vary based on age or length of service. These findings were consistent with Akyen et al. (2025), who found that daily earnings, origin, and ethnicity—rather than age or years of experience—influenced occupational health and safety practices among waste pickers.

Similarly, educational attainment showed weak positive correlations with knowledge (rho = 0.213, p = 0.155) and practices (rho = 0.163, p = 0.279), but these were not significant. This meant higher education might affect knowledge and practices a little, but not strongly. Vaccination status also was not a factor, with weak negative correlations for knowledge (r = -0.023, p = 0.880) and practices (r = -0.044, p = 0.769), both not significant. Dela Cruz and Ramos (2022) also found that age and work experience were more linked to safety awareness in waste management settings, showing that education alone may not predict safety knowledge and practices.

The results suggested that demographic factors such as age, years of experience, education, and vaccination status did not significantly affect the garbage collectors' knowledge and practices on environmental health and safety. This implied that other factors, like workplace training, institutional policies, or outside influences, may have played a bigger role in shaping their awareness and behavior.

Correlation Between Respondents' Knowledge and Practices on Environmental Health and Safety

Table 4. Correlation Analysis Results Between Respondents' Knowledge and Practices on Environmental Health and Safety

	Practices on Environmental Health and Safety	
	Correlation Coefficient (*r*)	p-value
Knowledge on Environmental Health and Safety	0.792**	0.000

Legend:**significant at 0.01 level

To address the fifth objective, the relationship between garbage collectors' knowledge and practices on environmental health and safety was examined through correlation analysis. The results in Table 5 demonstrated a strong and statistically significant positive relationship (r = 0.792, p = 0.000), indicating that as respondents' knowledge increased, their corresponding practices also improved. This correlation, significant at the 0.01 level, underscores the reliability of the finding and confirms that the association was not due to chance.

This outcome aligns with the study of Deress et al. (2019), which reported that higher knowledge levels on waste handling directly correlated with consistent use of personal protective equipment (PPE) among waste handlers. Similarly, other studies have emphasized that providing workers with accurate and comprehensive knowledge promotes adherence to occupational health standards, reduces risks, and enhances overall workplace safety. For garbage collectors, who are continuously exposed to health and environmental hazards, knowledge functions as a key factor of safe practices guiding their proper use of PPE, adherence to sanitation protocols, and implementation of environmentally responsible waste-handling practices.

Given this, interventions should focus on translating knowledge into consistent, practical actions. Recommended strategies include: structured and continuous training programs tailored to waste-handling risks, refresher courses to reinforce key safety concepts, accessible and sufficient PPE provision, simplified reporting and documentation procedures, and workplace policies that encourage the practical application of safety knowledge. Additionally, fostering a supportive organizational culture through supervision, mentoring, and team-based safety practices can further enhance compliance and reinforce safe behavior.

In summary, the significant positive relationship between knowledge and practices confirms that knowledge is a essential element of safe occupational practice. Enhancing garbage collectors' understanding through education, training, and supportive workplace policies can substantially improve environmental health and safety practices. Consequently, the null hypothesis asserting no relationship between knowledge and practices is rejected,

highlighting the need for knowledge-based interventions to strengthen occupational safety and sustainable waste management practices.

4. CONCLUSION AND RECOMMENDATION

Conclusion

This study assessed the knowledge and practices on environmental health and safety among garbage collectors in Talavera, Nueva Ecija. The findings indicate that while respondents generally demonstrated awareness of safety risks and adhered to protocols, gaps remain in certain practices and knowledge areas. Demographic factors such as age, education, work experience, and vaccination status did not significantly influence knowledge or practices. However, a strong positive relationship was observed between knowledge and practices, highlighting the critical role of education and training in improving occupational safety. These results underscore the need for targeted interventions to enhance the health and safety of garbage collectors.

Recommendations

Based on the findings of this study and conclusions derived therefrom, the following recommendations are respectfully submitted:

1. The LGU, through MENRO, should enforce strict PPE usage policies with clear sanctions for non-compliance, including graduated warnings and corrective actions.
2. Implement comprehensive training programs on environmental health and safety, including proper donning/doffing of PPE and sanitation of reusable equipment. Materials should be simple, visual, and accessible even to those with elementary-level education.
3. Encourage vaccination against hepatitis B through the Rural Health Unit and provide educational campaigns on proper handwashing and recognition of early symptoms of occupational health risks. Printed or visual materials (e.g., tarpaulins) should be displayed in frequently visited areas and presented in Tagalog for wider comprehension.
4. Strengthen workplace monitoring through simple incident reports and photo documentation to track safety compliance and occupational hazards.

Future Research

1. Investigate socio-demographic factors of garbage collectors, including living conditions, economic status, and healthcare access, and their impact on occupational health.
2. Examine long-term physical and mental health risks associated with waste exposure and the working environment.
3. Collaborate with LGUs to evaluate the effectiveness of implemented safety policies, training programs, and educational interventions.

Acknowledgements

The researchers sincerely thank everyone who contributed to this study's success through their invaluable support and guidance.

We extend our deepest gratitude to our research adviser, Kristhine Abegail M. Gamiao, MAN, RN, for her unwavering support, expertise, and guidance in refining our study. We also appreciate our Nursing Research I and II instructor, Rose Ann R. Paet, MAN, RN, for laying the foundation of our research knowledge and fostering critical inquiry.

Special thanks to Jaynelle G. Domingo, our statistical consultant, for his patience and expertise in ensuring accurate data analysis. We are also grateful to the faculty and staff of the College of Nursing, especially Dr. Zuzette B. Catabona, RN, for their support and valuable insights.

We acknowledge the unwavering support of our parents and friends, whose encouragement and assistance inspired us to persevere. Our sincere appreciation goes to Municipal Mayor Hon. Nerito S. Santos Jr. of Talavera, Nueva Ecija, for his support and for allowing us to study the knowledge and practices of garbage collectors. We also thank the garbage collectors who participated in our survey with honesty and dedication.

Above all, we thank the Merciful Lord for granting us strength, wisdom, and perseverance to overcome challenges and complete this study successfully.

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