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## Knowledge, Attitudes, and Personal Hygiene Practices among Applied Bachelor Students in Occupational Health and Safety

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### Abstract

Personal hygiene is an essential component of health promotion, particularly among students in Occupational Health and Safety (OHS) programs who are expected to apply healthy behaviors in academic and practical settings. This study aimed to examine differences in knowledge, attitudes, and personal hygiene practices among OHS D4 students based on individual characteristics. A quantitative observational study with a cross-sectional design was conducted involving 271 OHS D4 students selected through total sampling. Data were collected using a structured self-administered questionnaire assessing respondent characteristics, knowledge, attitudes, and personal hygiene practices. Descriptive analysis and one-way Analysis of Variance (ANOVA) were performed using statistical software with a significance level of  $p < 0.05$ . The results indicated that academic level and practical training experience were consistently associated with differences in knowledge, attitudes, and personal hygiene practices, while gender differences were observed only in knowledge. Effect size estimates suggested small to moderate practical significance, indicating meaningful associations rather than mere statistical differences. Although causal inference is limited due to the cross-sectional design and reliance on self-reported data, the findings underscore the importance of early integration of hygiene-focused learning activities and competency-based practical training within OHS curricula to support the development of consistent personal hygiene behaviors among future occupational safety professionals.

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## 1. INTRODUCTION

Personal hygiene is a critical element of occupational health, as it directly influences the prevention of infectious diseases and exposure-related health risks in work environments (Kamboj et al., 2020). In occupational settings, inadequate hygiene practices can increase susceptibility to biological, chemical, and physical hazards, potentially compromising both individual health and workplace safety (Chauhan et al., 2019). In the context of occupational health, personal hygiene is not only related to individual well-being but also contributes to workplace safety and productivity (Hasbi, Arif, & Suni, 2024).

Within the framework of health behavior research, knowledge, attitudes, and practices (KAP) are widely used to assess individuals' readiness to adopt and maintain healthy behaviors (Purba et al., 2020). Adequate knowledge provides the foundation for individuals to recognize the importance of personal hygiene, while positive attitudes influence their willingness to adopt healthy behaviors (Biyikoglu Alkan et al., 2025; Ridwan et al., 2017). Practices reflect the actual implementation of hygiene principles in daily life. However, evidence consistently shows that adequate knowledge does not necessarily translate into positive attitudes or consistent hygienic practices, particularly among student populations (Liu et al., 2024).

Students enrolled in Occupational Health and Safety (OHS) programs are future professionals who are expected to have a strong understanding of health and safety principles, including personal hygiene (Rofifah et al., 2019). As prospective occupational safety practitioners, OHS students should demonstrate exemplary hygiene behaviors, as they may later serve as role models and advisors in workplace health and safety settings (Muhammad, 2020). Therefore, assessing personal hygiene among OHS students is essential to ensure their readiness to promote and implement occupational health standards (Jain et al., 2025).

Previous studies have shown that personal hygiene behaviors can vary according to individual characteristics such as age, gender, educational level, and experience in health-related training or practical work (Farham & Petro, 2023; Habtegiorgis et al., 2021; Rosales et al., 2023). Differences in academic exposure, learning experiences, and environmental factors may influence students' levels of knowledge, attitudes, and practices regarding personal hygiene (Kabir et al., 2021). Understanding these variations is important for designing targeted educational interventions that address specific needs within student populations (Nurudeen & Toyin, 2020).

In the Indonesian higher education system, the Diploma 4 (D4) program is equivalent to an applied bachelor's degree, combining theoretical coursework with intensive practical training. OHS D4 students experience progressive exposure to occupational risk concepts across semesters, making them an appropriate group for examining how educational and experiential factors shape hygiene-related competencies. However, empirical evidence assessing differences in knowledge, attitudes, and personal hygiene practices based on student characteristics within this group remains limited. Therefore, this study aims to analyze differences in knowledge, attitudes, and personal hygiene practices among Occupational Health and Safety D4 students based on selected characteristics, including semester level and training-related experience. By identifying specific gaps and variations, this study seeks to contribute empirical evidence that can inform targeted educational strategies and strengthen personal hygiene promotion within OHS higher education programs.

## 2. METHOD

This study employed a quantitative observational design with a cross-sectional approach. The research was conducted in the Diploma 4 (D4) Occupational Health and Safety (OHS) program at a higher education institution located in Universitas Bima Internasional MFH, Provinsi Nusa Tenggara Barat, Indonesia. A cross-sectional design was chosen to allow the simultaneous assessment of knowledge, attitudes, and personal hygiene practices and to examine differences based on student characteristics at a single point in time.

The study population consisted of all active students enrolled in the OHS D4 program during 2022-2025 academic years. A total of 271 students participated in the study and were included as the research sample using a total sampling technique. Data were collected through a structured self-administered questionnaire distributed either in printed form or via an online platform.

Data were collected using a structured self-administered questionnaire distributed in both printed and online formats. The questionnaire comprised four sections: respondent characteristics (age, gender, semester level, and practical training experience), knowledge of personal hygiene, attitudes toward personal hygiene, and personal hygiene practices. Knowledge was assessed using multiple-choice questions, whereas attitudes and practices were measured using Likert-scale items.

The questionnaire was developed based on a review of relevant literature and previously published Knowledge, Attitude, and Practice (KAP) studies related to personal hygiene and occupational health. Content validity was evaluated through expert review by lecturers and practitioners in the field of occupational health and safety to ensure clarity and relevance of the items. A pilot test was conducted among students outside the study sample to assess reliability, and internal consistency analysis demonstrated acceptable reliability, with Cronbach's alpha coefficients of  $\geq 0.70$  for the attitude and practice domains.

Knowledge scores were calculated by assigning one point for each correct answer and converting the total score into a percentage. Knowledge levels were classified as good ( $\geq 76\%$ ), fair (56–75%), and poor ( $\leq 55\%$ ). Attitude and practice scores were obtained by summing Likert-scale responses, converting them into percentages, and categorizing them as positive/good ( $\geq 76\%$ ), neutral/fair (56–75%), or negative/poor ( $\leq 55\%$ ).

Data analysis was performed using statistical software. Descriptive statistics were used to summarize respondent characteristics and to describe levels of knowledge, attitudes, and personal hygiene practices. Prior to inferential analysis, tests of normality and homogeneity of variance were conducted to ensure that the assumptions for parametric testing were met. Differences in mean knowledge, attitude, and practice scores were analyzed using one-way Analysis of Variance (ANOVA) based on student characteristics, including age, gender, semester level, and practical training experience. When statistically significant differences were identified, Tukey's Honestly Significant Difference (HSD) post-hoc test was applied to determine specific group differences. In addition to p-values, effect sizes ( $\eta^2$ ) were calculated to assess the magnitude of the observed differences. Statistical significance was set at  $p < 0.05$ .

This study received ethical approval from the Research Ethics Committee of Universitas Bima Internasional MFH approval No. 14/KEPK-IA/X/2025. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection. Anonymity and confidentiality were maintained throughout the study. This research has several limitations, including the use of self-administered questionnaires, which may be

subject to social desirability bias, recall bias, and response bias. However, assurances of anonymity and confidentiality were provided to minimize these potential biases.

### 3. RESULTS AND DISCUSSION

**Table 1.** Characteristics of Respondents (n = 271).

Characteristic	Category	n	%
Age (years)	≤ 20	98	36.2
	> 20	173	63.8
Gender	Male	156	57.6
	Female	115	42.4
Semester Level	Semester 2–3	84	31.0
	Semester 4–5	109	40.2
	Semester 6–7	78	28.8
Practical Training Experience	No	121	44.6
	Yes	150	55.4
Total		271	100

Table 1 shows the characteristics of the respondents involved in this study. Of the 271 respondents, the majority were over 20 years old (63.8%). More than half of the respondents were male (57.6%), while 42.4% were female. Based on semester level, most respondents were in semesters 4–5 (40.2%), followed by semesters 2–3 (31.0%) and semesters 6–7 (28.8%). In addition, more than half of the respondents had prior practical training experience (55.4%), whereas 44.6% had not yet participated in practical training.

**Table 2.** Distribution of Respondents' Knowledge, Attitudes, and Personal Hygiene Practices.

Variable	Category	n	%
Knowledge	Good	162	59.8
	Fair	87	32.1
	Poor	22	8.1
Attitude	Positive	179	66.1
	Neutral	64	23.6
	Negative	28	10.3
Practice	Good	148	54.6
	Fair	93	34.3
	Poor	30	11.1
Total Respondents		271	100

Based on Table 2, the majority of respondents demonstrated a good level of knowledge regarding personal hygiene (59.8%). In terms of attitudes, most respondents showed positive attitudes toward personal hygiene (66.1%). Meanwhile, for the practice variable, more than half of the respondents exhibited good personal hygiene practices (54.6%).

**Table 3.** Results of One-Way ANOVA on Knowledge, Attitudes, and Personal Hygiene Practices Based on Respondent Characteristics.

Dependent Variable	Characteristic	F	p-value
Knowledge	Gender	4.21	0.041*
	Semester Level	6.87	0.001*
	Practical Training Experience	9.34	0.003*
Attitude	Gender	1.98	0.161

	Semester Level	5.42	0.005*
	Practical Training Experience	7.11	0.008*
Practice	Gender	0.87	0.352
	Semester Level	4.96	0.008*
	Practical Training Experience	10.25	0.002*

Based on Table 3, the results of the one-way ANOVA indicate that there were significant differences in personal hygiene knowledge scores according to gender, semester level, and practical training experience ( $p < 0.05$ ). For attitudes toward personal hygiene, significant differences were observed based on semester level and practical training experience, whereas no significant difference was found based on gender ( $p > 0.05$ ). Similarly, significant differences in personal hygiene practices were identified according to semester level and practical training experience; however, no significant difference was observed based on gender.

The findings of this study indicate that most OHS D4 students demonstrated good levels of knowledge, positive attitudes, and appropriate personal hygiene practices. Rather than merely reflecting individual awareness, this pattern suggests that structured education in occupational health and safety may play a central role in shaping hygiene-related competencies. OHS curricula emphasize hazard recognition, disease prevention, and safe work behaviors, which likely reinforces the importance of personal hygiene as a preventive measure in occupational settings. Similar findings have been reported among health- and safety-related students, where formal education was associated with higher hygiene-related knowledge and compliance. Significant differences in knowledge based on semester level and practical training experience highlight the cumulative effect of academic exposure and experiential learning. Post-hoc analysis indicated that students in higher semesters and those with practical training experience scored significantly higher than their lower-semester counterparts, suggesting that progressive coursework and field exposure enhance conceptual understanding of hygiene-related risks. This finding is consistent with previous studies showing that advanced academic levels and hands-on training are associated with improved occupational health knowledge (Ansari, 2025). Practical training may contextualize theoretical concepts, enabling students to recognize the real-world consequences of poor hygiene in workplace environments.

In terms of attitudes toward personal hygiene, significant differences were found according to semester level and practical training experience, but not gender. This indicates that attitudes may be more strongly influenced by educational progression and experiential learning rather than inherent demographic factors (Requena & González-González, 2024). As students advance in their studies and participate in practical training, they may develop a stronger appreciation of the role of personal hygiene in preventing occupational and environmental health risks, leading to more positive attitudes (Mansour & Alfojery, 2025).

Similarly, significant differences in personal hygiene practices were observed based on semester level and practical training experience, while no significant difference was found based on gender. This finding highlights the importance of practical exposure in translating knowledge and attitudes into actual behavior. Practical training provides students with opportunities to apply theoretical concepts in real settings, reinforcing proper hygiene practices (Pursell & Gould, 2022). Overall, these results underscore the critical role of education and experiential learning in improving knowledge, shaping attitudes, and promoting appropriate personal hygiene practices among OHS students.

#### 4. CONCLUSION

This study contributes to the Knowledge–Attitude–Practice (KAP) literature by demonstrating that academic progression and practical training are more influential than demographic factors in shaping personal hygiene–related attitudes and practices among Occupational Health and Safety (OHS) D4 students. The findings emphasize the role of structured curricula and experiential learning in fostering professional hygiene behavior; however, interpretation should consider the study’s limitations, including its cross-sectional design, reliance on self-reported data, and single-institution sample. To enhance educational impact, OHS programs are encouraged to integrate hygiene-focused case-based learning in early semesters, implement standardized hygiene performance assessments during practical training, and provide structured feedback that explicitly links personal hygiene behaviors to occupational risk prevention.

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