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HYGIENE AND SANITATION PRACTICES ON LEARNERS' WELL-BEING

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ABSTRACT

This study examined the relationship between hygiene and sanitation practices and the well-being of Grade 7 and Grade 8 learners at Nag-Iba National High School, Calapan City, as a basis for a proposed School Health Program. Using a quantitative descriptive-correlational design, the study surveyed 148 learners during School Year 2025–2026. A four-point questionnaire measured hygiene practices, sanitation practices, and self-reported physical, social, and cognitive well-being. Descriptive statistics and Pearson's correlation were used to analyze the data. Learners reported very high levels of oral hygiene and handwashing (M = 3.62), food hygiene (M = 3.58), and proper toilet use (M = 3.53). Participation in deworming activities (M = 3.48), safe drinking water practices (M = 3.42), and environmental cleanliness and waste segregation (M = 3.44) were rated high. Reported physical, social, and cognitive well-being were very high, with means ranging from 3.52 to 3.54. All measured hygiene and sanitation practices had significant positive relationships with the three dimensions of well-being ($p < .001$). Environmental cleanliness and proper waste segregation showed the strongest associations with physical ($r = .627$) and cognitive well-being ($r = .628$). The findings indicate that learners who reported better hygiene and sanitation practices also tended to report better well-being, although the correlational design does not establish causation. The proposed Project L.I.F.E. S.C.I.E.N.C.E. responds to areas needing improvement through health education, visual hygiene reminders, classroom waste segregation, deworming education, and a system for reporting sanitation concerns.

Keywords: DepEd WinS, hygiene practices, Learners' Well- Being, Sanitation, Practices, School Health program

1 INTRODUCTION

Access to safe drinking water, adequate sanitation facilities, and proper hygiene practices is essential in protecting learners' health and supporting their educational experiences. Schools serve as important settings for promoting these practices because learners spend a considerable amount of time in school environments where exposure to unsafe water, inadequate sanitation, and poor hygiene may increase the risk of infectious diseases [1, 2]. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) emphasize that access to basic water, sanitation, and hygiene (WASH) services in schools remains a global concern, with gaps affecting millions of schoolchildren [3]. These conditions are relevant to Sustainable Development Goal (SDG) 3 (Good Health and Well-being), SDG 4 (Quality Education), and SDG 6 (Clean Water and Sanitation). Accordingly, the WHO and UNESCO promote a health-promoting school approach that integrates health, well-being, and learning into school policies and practices [4].

In the Philippines, the Department of Education (DepEd) institutionalized the Water, Sanitation, and Hygiene in Schools (WinS) Program through DepEd Order No. 10, s. 2016, which provides guidelines for improving water access, sanitation facilities, hygiene practices, deworming, and health education in schools [5]. However, the implementation of the program continues to face challenges involving resource availability, sustainability of facilities, deworming participation, and coordination among stakeholders [6]. A recent assessment of WinS implementation in Philippine schools also identified gaps in potable water, sanitation facilities, hygiene supplies, and student participation in health initiatives [7]. Furthermore, evidence from a systematic review indicates that school-based hygiene interventions can improve learners' hygiene knowledge and practices and may reduce infection-related absenteeism, although the certainty of evidence varies across outcomes [8], [9]. These findings highlight the importance of combining adequate school facilities with sustained health education and learner participation.

At the local level, WinS monitoring reports in the Schools Division of Calapan City indicated varying levels of program implementation among public secondary schools from 2022 to 2024. Nag-Iba National High School (NNHS) recorded consecutive 0-Star WinS ratings during this period, indicating the need to strengthen its school-based hygiene and sanitation initiatives [10]. Although improvements were observed during School Year 2025–2026, concerns regarding safe drinking water, water supply interruptions, and waste segregation remained. Furthermore, the school had no comprehensive School Health Program that systematically addressed learners' hygiene and sanitation practices and well-being. These conditions emphasize the importance of examining not only school-level compliance with WinS standards but also the extent to which learners observe proper hygiene and sanitation practices in their daily school activities. Previous research on the Philippine WinS Program likewise highlights the need for sustained implementation, stakeholder coordination, and stronger integration of school and community health initiatives [6].

Despite the implementation of WASH initiatives, the availability of facilities and compliance with school standards do not necessarily ensure that learners consistently practice proper hygiene and sanitation. Moreover, the relationship of these practices with learners' physical, social, and cognitive well-being requires further examination, particularly among Grade 7 and Grade 8 learners. Previous studies have associated access to drinking water with aspects of children's cognitive performance, while research on school health promotion emphasizes the interconnectedness of learners' health, well-being, and educational experiences. Early adolescence is also a critical developmental stage during which health-related behaviors and habits are established and reinforced [11]. Understanding these relationships can provide a basis for developing school-based interventions that address learners' actual needs. Thus, this study aimed to assess the hygiene and sanitation practices of Grade 7 and Grade 8 learners at NNHS and determine their relationship with physical, social, and cognitive well-being. The findings served as the basis for a proposed School Health Program aligned with SDG 4 and SDG 6.

2 METHODOLOGY

2.1 Research Design

The study employed a quantitative descriptive-correlational research design to describe learners' hygiene and sanitation practices and well-being and determine the relationships between these variables. The descriptive component assessed hygiene and sanitation practices based on the Department of Education's Water, Sanitation, and Hygiene in Schools (WinS) Program and learners' physical, social, and cognitive well-being. Meanwhile, the correlational component examined the strength and direction of the relationships between the variables without manipulating or introducing experimental treatments.

2.2 Research Locale

The study was conducted at Nag-Iba National High School (NNHS), a public secondary school located in Barangay Nag-Iba II, Calapan City, Oriental Mindoro as shown in Figure 1. The school was selected because of its previous WinS implementation challenges, including consecutive 0-Star ratings from 2022 to 2024 and continuing concerns regarding safe drinking water, water availability, and waste segregation. Furthermore, the school did not have an existing comprehensive School Health Program that systematically addressed learners' hygiene, sanitation, and well-being.

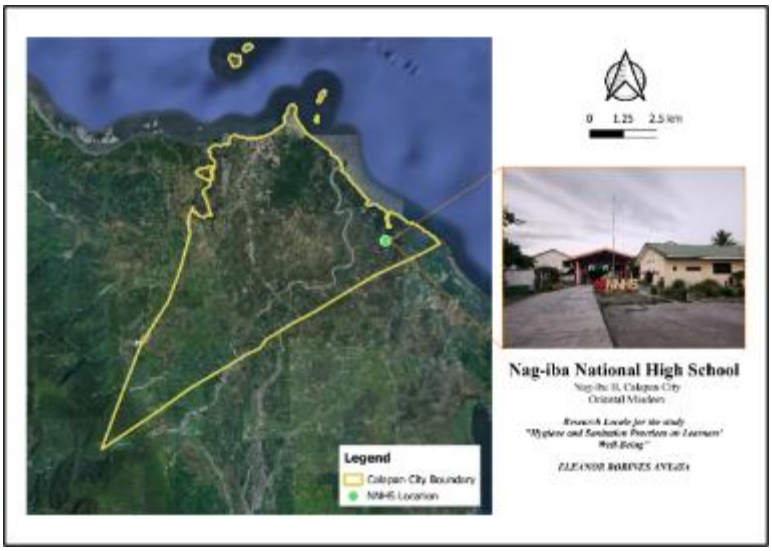


Figure 1: Nag-Iba National High School (NNHS)

2.3 Respondents and Sampling Technique

The respondents consisted of 148 Grade 7 and Grade 8 learners selected from a total population of 231 during School Year 2025–2026. The minimum sample size was determined using Slovin's Formula with a 5% margin of error. Simple random sampling was employed to select the participants, giving each eligible learner an equal opportunity to be included in the study. Of the 148 respondents, 68 were from Grade 7, representing 45.95% of the sample, while 80 were from Grade 8, representing 54.05%.

2.4 Research Instrument

Two separate research instruments were utilized to collect data for the independent and dependent variables. The first instrument, the Hygiene and Sanitation Practices Questionnaire, assessed learners' practices based on the components of the Department of Education's WinS Program. It covered oral hygiene and handwashing, food hygiene, participation in deworming activities, safe drinking water practices, proper toilet use, and environmental cleanliness and proper waste segregation. The second instrument, the Learners' Well-Being Questionnaire, assessed the respondents' well-being in terms of physical, social, and cognitive dimensions. Both instruments utilized a four-point Likert-type scale to quantify the responses of the learners.

2.5 Validation of Research Instruments

The research questionnaires underwent content validation by five validators composed of an elementary school principal, a Master Teacher, a Division Office WinS coordinator, a statistician, and a high school science teacher. The validators evaluated the relevance and appropriateness of each questionnaire item in relation to the research objectives and variables. Their comments and recommendations were incorporated to improve the clarity and suitability of the instruments before pilot testing.

2.6 Reliability of Research Instruments

Pilot testing was conducted among Grade 7 and Grade 8 learners who were not included in the actual study. The responses were evaluated using Cronbach's alpha to determine the internal consistency of the questionnaire items. The results showed reliability coefficients ranging from 0.91 to 0.99 for the hygiene and sanitation practices indicators and 0.97 to 0.98 for the learners' well-being indicators. These values indicated excellent internal consistency, confirming that the research instruments were reliable for measuring the intended variables.

2.7 Data-Gathering Procedure

Before conducting the study, the researcher secured the necessary permissions from the Graduate School, Schools Division Office of Calapan City, and the principal of Nag-Iba National High School. Upon approval, coordination with school administrators and class advisers was undertaken to establish the schedule for data collection. The questionnaires were subjected to content validation and pilot testing before their actual administration. Parental consent and student assent were also obtained to ensure voluntary participation. The researcher personally administered the questionnaires with the assistance of a designated class adviser. After collection, the responses were coded, tabulated, and checked for completeness and accuracy before statistical analysis.

2.8 Statistical Analysis

The collected data were analyzed using descriptive and inferential statistical techniques. Frequency and percentage were used to summarize the distribution of responses, while weighted mean was employed to determine the levels of hygiene practices, sanitation practices, and learners' physical, social, and cognitive well-being. Cronbach's alpha was used to assess the internal consistency of the research instruments. Furthermore, the Pearson Product-Moment Correlation Coefficient (Pearson's r) was utilized to determine the strength, direction, and significance of the relationships between hygiene and sanitation practices and learners' well-being. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS).

3 RESULTS AND DISCUSSION

3.1 Level of Hygiene Practices

Table 1 presents the level of hygiene practices among Grade 7 and Grade 8 learners. Oral hygiene and handwashing obtained the highest weighted mean of 3.62, followed by food hygiene with 3.58, both interpreted as Very High. Meanwhile, deworming activities obtained a weighted mean of 3.48, indicating a High level of practice. The overall weighted mean of 3.56 indicates that learners generally demonstrate very high levels of hygiene practices. The relatively higher ratings for oral hygiene, handwashing, and food hygiene signify that these practices are more consistently observed by learners compared with deworming activities. The difference between the highest and lowest indicators is 0.14, indicating that although all three areas received favorable assessments, the frequency of participation in deworming activities is comparatively lower. This indicates that learners demonstrate stronger adherence to routine personal hygiene practices, while deworming activities receive a slightly lower level of observance.

Table 1: Level of Hygiene Practices of Grade 7 and Grade 8 Learners

Hygiene Practices	Weighted Mean	Interpretation
Oral hygiene and handwashing	3.62	Very High
Food hygiene	3.58	Very High
Deworming activities	3.48	High
Overall	3.56	Very High

3.2 Level of Sanitation Practices

Table 2 presents the level of sanitation practices among Grade 7 and Grade 8 learners. Proper toilet use obtained the highest weighted mean of 3.53, interpreted as Very High. Environmental cleanliness and waste segregation obtained a weighted mean of 3.44, while safe drinking water received the lowest mean of 3.42, both interpreted as High. The overall weighted mean of 3.46 indicates a generally High level of sanitation practices among learners. The difference of 0.11 between the highest and lowest indicators signifies that the three sanitation areas received relatively close assessments. However, the higher rating for proper toilet use indicates that learners demonstrate greater consistency in observing appropriate toilet practices compared with their practices related to safe drinking water and environmental cleanliness. Meanwhile, the lower ratings for safe drinking water and environmental cleanliness signify comparatively less consistent observance in these areas. This indicates that although learners generally demonstrate positive sanitation practices, the level of observance varies slightly across the different sanitation indicators.

Table 2: Level of Sanitation Practices of Grade 7 and Grade 8 Learners

Sanitation Practices	Weighted Mean	Interpretation
Safe drinking water	3.42	High
Proper toilet use	3.53	Very High
Environmental cleanliness and waste segregation	3.44	High
Overall	3.46	High

3.3 Status of Learners' Well-Being

Table 3 presents the level of well-being of Grade 7 and Grade 8 learners in terms of physical, social, and cognitive dimensions. Cognitive well-being obtained the highest weighted mean of 3.54, followed by physical and social well-

being, both with a mean of 3.52. All dimensions were interpreted as Very High, with an overall weighted mean of 3.53. The difference between the highest and lowest weighted means is only 0.02, indicating that the three dimensions received nearly similar assessments. The slightly higher rating for cognitive well-being signifies that learners reported favorable experiences in areas related to their learning and mental engagement. Meanwhile, the equal ratings for physical and social well-being indicate comparable assessments of their perceived health and social experiences. This indicates that learners generally reported favorable levels of well-being across all three dimensions, with no substantial variation in their weighted mean ratings.

Table 3: Level of Learners' Well-Being

Dimensions of Well-Being	Weighted Mean	Interpretation
Physical well-being	3.52	Very High
Social well-being	3.52	Very High
Cognitive well-being	3.54	Very High
Overall	3.53	Very High

3.4 Relationship Between Hygiene and Sanitation Practices and Learners' Well-Being

Table 4 presents the relationship between hygiene and sanitation practices and the physical, social, and cognitive well-being of learners. The results revealed significant positive correlations between all hygiene and sanitation indicators and the three dimensions of well-being ($p < .001$). Among the hygiene indicators, deworming activities demonstrated the strongest association with physical well-being ($r = 0.536$), while food hygiene had the strongest association with social well-being ($r = 0.437$). Food hygiene also demonstrated a positive association with cognitive well-being ($r = 0.511$), although its correlation was slightly lower than that of deworming activities ($r = 0.518$).

For sanitation practices, environmental cleanliness and waste segregation demonstrated the strongest associations with physical ($r = 0.627$), social ($r = 0.533$), and cognitive well-being ($r = 0.628$). In contrast, safe drinking water obtained the lowest correlation coefficients across all three dimensions, with r-values of 0.365, 0.272, and 0.334, respectively. This indicates that environmental cleanliness and waste segregation have comparatively stronger relationships with learners' reported well-being than the other sanitation indicators. The positive correlation coefficients across all indicators signify that higher levels of reported hygiene and sanitation practices are associated with higher levels of reported physical, social, and cognitive well-being. However, these findings establish associations rather than cause-and-effect relationships.

Table 4: Correlation Between Hygiene and Sanitation Practices and Learners' Well-Being

Hygiene and Sanitation Indicators	Physical (r)	Social (r)	Cognitive (r)
Hygiene Practices			
Oral hygiene and handwashing	0.403	0.306	0.453
Food hygiene	0.524	0.437	0.511
Deworming activities	0.536	0.351	0.518
Sanitation Practices			
Safe drinking water	0.365	0.272	0.334
Proper toilet use	0.495	0.412	0.508
Environmental cleanliness and waste segregation	0.627	0.533	0.628

3.5 Proposed School Health Program

Table 5 presents the proposed interventions under Project L.I.F.E. S.C.I.E.N.C.E., developed based on the findings of the study. The program covers five areas: strengthening hygiene practices, improving environmental cleanliness, increasing awareness of deworming, addressing sanitation concerns, and promoting proper sanitation practices. These are represented by health education and visual hygiene reminders, classroom-based waste segregation activities, deworming education and awareness activities, the WinS QR-Sumbong System, and continuous hygiene and sanitation education.

The identified interventions correspond to the indicators assessed in the study. In particular, environmental cleanliness and waste segregation had the strongest correlations with physical and cognitive well-being, while deworming activities had the strongest association with physical well-being among the hygiene indicators. The proposed program therefore signifies an effort to address the specific dimensions of hygiene and sanitation covered by the research. This indicates that the proposed School Health Program is anchored on the observed levels of hygiene and sanitation practices and their significant relationships with learners' well-being.

Table 5: Proposed Interventions for Project L.I.F.E. S.C.I.E.N.C.E.

Identified Areas for Improvement	Proposed Interventions
Strengthening hygiene practices	Health education and visual hygiene reminders
Improving environmental cleanliness	Classroom-based waste segregation activities
Increasing awareness of deworming	Deworming education and awareness activities
Addressing sanitation concerns	Implementation of the WinS QR-Sumbong System
Promoting proper sanitation practices	Continuous hygiene and sanitation education

Furthermore, Figure 2 presents the structural design of Project L.I.F.E. S.C.I.E.N.C.E., illustrating how the identified gaps in learners' hygiene and sanitation practices are addressed through curriculum-based structural innovations. These gaps include inconsistent hygiene and handwashing practices, gaps in the use of safe water and proper toilet facilities, low participation in deworming activities, and inconsistent environmental cleanliness and waste segregation. The framework addresses these concerns through the integration of hygiene, sanitation, and well-being principles into the curriculum, supported by the Visual Hygiene Cue System, WinS QR-Sumbong System, classroom-based waste segregation, and deworming health literacy. These interventions are designed to reinforce learners' knowledge, encourage consistent hygiene and sanitation practices, and provide mechanisms for reporting and addressing sanitation concerns.

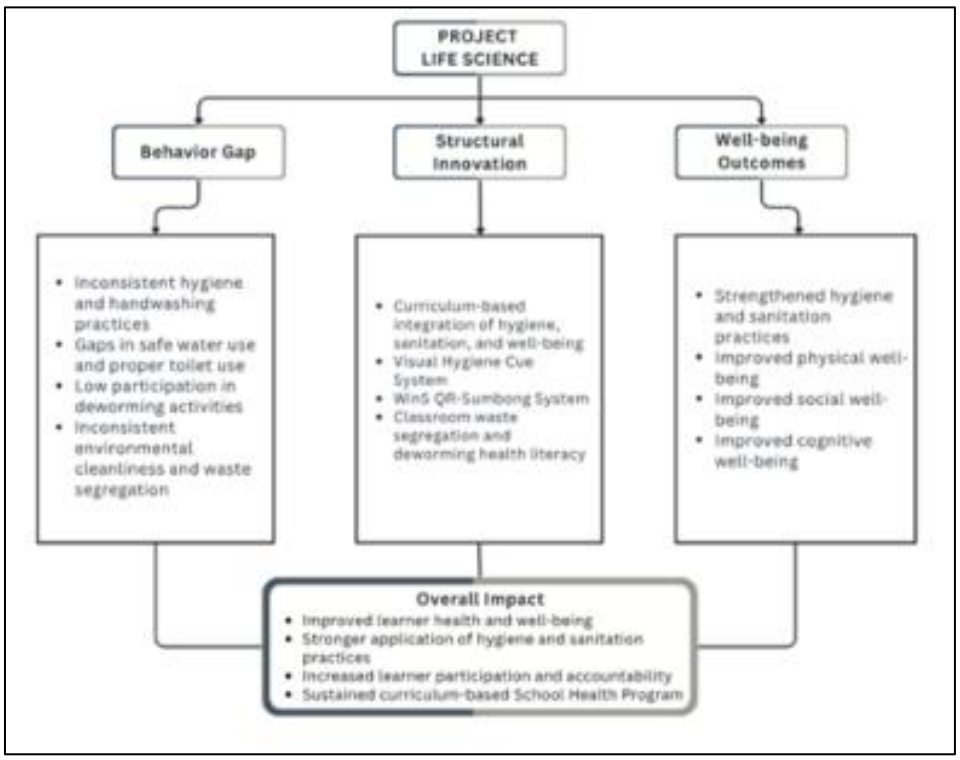


Figure 2: Project LIFE SCIENCE Framework

The framework further illustrates the expected well-being outcomes of these interventions, particularly strengthened hygiene and sanitation practices and improved physical, social, and cognitive well-being. The connection between the identified behavior gaps, structural innovations, and expected outcomes emphasizes that the proposed program goes beyond providing information by incorporating practical activities and school-based mechanisms into learners' daily routines. It also highlights the importance of active learner participation and accountability in maintaining a healthy

and sanitary school environment. Ultimately, the overall impact of Project L.I.F.E. S.C.I.E.N.C.E. is directed toward improved learner health and well-being, stronger application of hygiene and sanitation practices, increased learner participation and accountability, and the sustained implementation of a curriculum-based School Health Program.

4 CONCLUSIONS

This study examined the relationship between hygiene and sanitation practices and the well-being of Grade 7 and Grade 8 learners at Nag-Iba National High School, Calapan City, as a basis for a proposed School Health Program. Based on the findings of the study, it is concluded that Grade 7 and Grade 8 learners generally demonstrated favorable hygiene practices. Very high levels were observed in oral hygiene and handwashing practices and food hygiene practices, while participation in deworming activities was at a high level. Also, the learners generally demonstrated favorable sanitation practices. Proper toilet use was at a very high level, while safe drinking water practices and environmental cleanliness and proper waste segregation practices were at high levels. The learners generally reported a very high status of well-being across the physical, social, and cognitive dimensions. This shows that the learners experienced generally favorable conditions in the three dimensions of well-being examined in the study.

Moreover, Hygiene and Sanitation practices were significantly and positively related to the physical, social, and cognitive well-being of the learners. The findings demonstrate that both hygiene and sanitation practices were associated with the learners' reported physical, social, and cognitive well-being. The significant relationships provide a basis for strengthening learner-centered health education within the school setting. The findings support the need to address hygiene and sanitation not only as compliance-related practices under the WinS framework but also as learner practices related to physical, social, and cognitive well-being.

Lastly, Project L.I.F.E. S.C.I.E.N.C.E. provides a curriculum-based response to the identified areas for strengthening hygiene and sanitation practices and learner well-being. Through the integration of hygiene and sanitation concepts into instruction, visual hygiene cues, the WinS QR-Sumbong System, classroom-based waste segregation, and deworming health literacy, the proposed program is designed to reinforce consistent learner practices and participation.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

The authors declare no conflicts of interest regarding this manuscript.

Statement of ethical approval

All procedures involving human participants were conducted in accordance with institutional ethical standards.

Statement of informed consent

Prior to accessing the survey, all student participants were informed of the study's purpose, voluntary nature, and confidentiality safeguards, and provided informed consent.

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