Factors Influencing the Behavior of Solid Waste Management in the Dormitory of Nursing Students, Boromarajonani College of Nursing, Changwat Nonthaburi

Original article

Received : January 5, 2025
Revised : July 15, 2025
Accepted : August 10, 2025
Published : August 29, 2025

Masarin Sukolpuk[1], Ganittar Thanadkit[2], Waranist Lamyai[3],
Nitinan Phantawee[1], Rangsima Wongsutin[1]
[1]Boromarajonani College of Nursing Changwat Nonthaburi, Faculty of Nursing, Praboromarajchanok Institute, Ministry of Public Health, Nonthaburi, Thailand,
[2]Praboromarajchanok Institute, Ministry of Public Health, Nonthaburi, Thailand,
[3]Faculty of Management, Shinawatra University, Pathum Thani, Thailand,

Abstract

This descriptive research aimed to determine attitudes toward solid waste management, participation in solid waste management, information perception about solid waste management, and solid waste management behavior in the dormitory and factors influencing solid waste management behavior in the dormitory. The sample was 524 recruited by online simple random sampling. The instrument was a set of questionnaires including attitude towards solid waste management, participation in solid waste management, information perception about solid waste management, and solid waste management behavior in the dormitory. The content validity index ranged from 0.67-1.00. Cronbach's alpha reliability of all questionnaires was .74, .93, .71, and .74 respectively. Data were analyzed using descriptive statistics and stepwise multiple regression analysis.

Study results revealed that attitude towards solid waste management was a high level ($\bar{x}$ =4.13, S.D.= 0.67), information perception about solid waste management was a high level ($\bar{x}$ = 4.01, S.D.= 0. 63), solid waste management behavior in the dormitory was a high ($\bar{x}$=3.90, S.D.= 0.59) and participation in solid waste management was a low level ($\bar{x}$ =3.38, S.D.= 0.84. Factors influencing participation in solid waste management included attitude towards solid waste management (Beta =.240, p<.001) participation in solid waste management (Beta =.245, p<.001information perception about solid waste management. These factors could significantly explain 54.50% of the variance (R^2=.545, p <.001) (p=.001).

Keywords: Solid Waste Management, Attitude, Participation, Perception, Nursing Student

Corresponding Author: Nitinan Phantawee E-mail: o.phantawee@gmail.com

ISSN 2673-0200 (print) ISSN 2673-0251 (online)

Introduction

Advances in the economy, technology, population, and the increase in solid waste in the country are becoming one of the most important challenges for urban and regional environments (Pan, Y., Li, M., Guo, H., et al, 2022), and the pollution situation of the country, the Pollution Control Department has been monitoring and inspecting regularly every year and found that the main environmental problem or pollution problem that still exists is the problem of garbage and waste that is not properly managed (Pollution Control Department Ministry of Natural Resources and Environment, 2022), including consumption behavior. Public consumption, especially in the Coronavirus 2019 outbreak, together with the epidemic prevention guidelines, especially social distancing. Affecting lifestyle changes, especially when ordering groceries online, food containers have changed with packaging such as plastic, foam, and paper cups. Produces higher amounts of solid waste, affecting the environment such as foul odors. It is a habitat for animals that carry diseases, so the resulting waste is a problem that everyone in both houses and dormitories must pay attention to and work together to solve.

Boromarajonani College of Nursing, Changwat Nonthaburi is a higher education institution that offers a Bachelor of Nursing program. Most nursing students have lived in college dormitories in the past few years amid the COVID-19 outbreak situation. Affecting the daily life in the dormitories of nursing students, especially consumption, there are more online purchases. Results in leftovers that cannot be utilized further therefore, they turn into garbage, and most of the waste that is found, e.g., plastic bags, candy packets, foam, plastic bottles, water cans, paper boxes, and paper. Causing the behavior of waste management to change affecting the quality of life of students living in dormitories

From the literature review, it was found that attitudes are feelings, beliefs, and behavioral tendencies of individuals toward individuals. Also, any object or idea in terms of evaluating values, feelings, beliefs, and tendencies. This behavior must persist for a long time (Sangpithak,w., Janhong K., Wanish W., & Padklang,. 2021; Boonjun S, & Phetphum C., 2018). A process in which a group of people are involved in a joint problem-solving or decision-making process, in the development work, share ideas, and share their roles by using appropriate technology. The participation of students in the dormitory in waste management is to separate the waste before disposal and help reuse, recycling and reduce the amount of waste. (Adeniran, A. E., Nubi, A. T., & Adelopo, A. O.,2017). The information perception section is the awareness of students about good waste management, including separating paper, plastic, and snack bags, which must be disposed of in a dry bin, while waste such as food scraps, vegetable scraps, and fruit peels must be disposed of in a wet bin. The study of the perception and behavior of waste management of students at Boromarajonani College of Nursing, Phayao, found that most students had a moderate level of perception of waste management. (Chachvarat et al., 2018; Kaewboonchoo, 2019). As for waste management behaviors that are good practices, they include reusing recycled materials, reusing materials, and repairing damaged materials for reuse, and waste management behaviors that are moderate include avoiding materials that create waste problems and reducing the amount of waste. (Rattanakanahutanon, F., Duangpratoom, N., Sirirat, C. 2024)

Efficient and sustainable waste management requires nursing students to have an attitude toward waste management. Information perception about waste management and participation of students in solid waste management, students must also have good behavior towards waste management, for planning the elimination of drops, corrective approaches, and setting measures Therefore, having accurate information Comprehensive and up-to-date on such matters. It will be the basic information to

ISSN 2673-0200 (print) ISSN 2673-0251 (online)

lead to planning and to promote proper waste management behaviors in nursing students' dormitories. This includes leading to the creation of a concrete policy that is consistent with the existing context, together with being a guideline for communication and public relations to meet the needs of nursing students in the future, appropriate for effective waste management.

Research objectives

1. To study the attitudes towards solid waste management, including participation in solid waste management activities, perception of solid waste management information, and solid waste management behaviors in the nursing students' dormitory.

2. To study the factors influencing the behavior of waste management in the dormitories of nursing students.

Conceptual framework

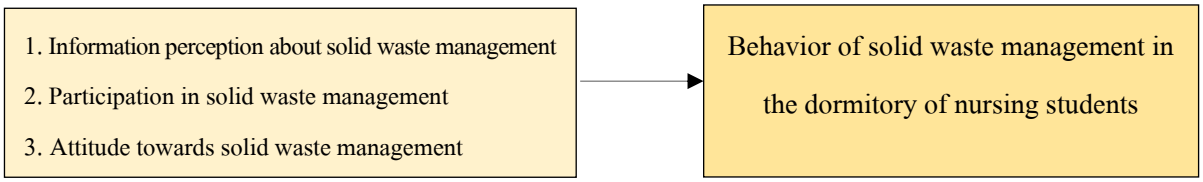


Figure 1. Conceptual framework

Methodology

This research is Descriptive Research.

Population and Sample

The population is nursing students in the 1st – 4 th year of the 2022 academic year of Boromarajonani College of Nursing, Changwat Nonthaburi

The sample used in the research were nursing students in the 2022 academic year who lived in the dormitory of Boromarajonani College of Nursing, Changwat Nonthaburi. Samples were calculated using G* Power Analysis program (Faul, Erdfelder, Lang, & Buchner, 2007). Test family was selected F-test, statistical test was selected Linear multiple regression: fix model, R2 deviation from zero, medium influence was set (Effect size) = 0.15 (Cohen, 1988), error (Alpha) = .05 and Power = .95. Three independent variables (Number of predictors) from 119 samples. Boromarajonani Collage of Nursing, Changwat Nonthaburi. There were 4 years of nursing students. The researcher increased the sample four times, resulting in a total of 476 students, adding an allowance of 10% for 50 people, obtaining a sample of 526 people, using a simple random sampling proportional to the number of students in each year. After collecting data, there were 2 sets of incomplete data, so there were 524 sets of questionnaires for data analysis.

Research instruments

The instruments used in this research, developed by the researcher from the literature review, are as follows:

Part 1 General Information of Respondents which consisted of gender, age, year, total of 3 items.

Part 2 The questionnaire influencing the behaviors of solid waste management in nursing students' dormitories was divided into 4 parts: 1) Attitude towards solid waste management 9 items 2) Participation in solid waste management 10 items 3) Information perception about solid waste management 11 items 4) Solid waste management behavior in nursing students' dormitories 15 items, totaling 45 items.

For parts 2, 3, and 4 of the questionnaires, the nature of the questionnaire was a questionnaire with a 5-level Rating Scale, from the most practical/agreeing given 5 points to the most practical/agreeing given 1

point by the success level classification criteria. In the operation, using the criteria of Wongratana (2010), there are 5 levels as follows:

Mean 1.00 – 1.49 means Agree/Participate/Acknowledge/Perform at the lowest level.

Mean 1.50 – 2.49 means Agree/Participate/Acknowledge/Perform low level.

Mean 2.50 – 3.49 means Agree/Participate/Acknowledge/Perform moderate.

Mean 3.50 – 4.49 means Agree/Participate/Acknowledge/Perform in high.

Mean 4.50 – 5.00 means Agree/Participate/Acknowledge/Perform in very high.

Instruments quality check

The instruments used were examined for content validity by 3 experts, namely 1 research expert and 2 health behavior modification experts. The index of item objective congruence values were between .67 - 1.00 and questionnaires were used. Tried out with 30 non-sample nursing students residing in dormitories, Cronbach's alpha coefficient of confidence on the attitude towards solid waste management questionnaire was .74. Participation in solid waste management was.93 information perception about solid waste management was .71. The solid waste management behavior in the dormitories of nursing students was .74.

Data collection

The data was collected using a simple random sampling online survey using a Google form and online questionnaires to student representatives from each year through Application Line to forward to the sample group. In the online questionnaire, there is protection of the rights of the sample and the consent to provide information before answering the questionnaire. However, after submitting the questionnaire online. The researcher checks the number of respondents and the completeness of the questionnaire every day. From online data collection, the researcher took 3 weeks to obtain 526 sets of data. The researcher ended the questionnaire acceptance. From the investigation, it was found that two of the returned online questionnaires were incomplete. The remaining 524 sets of research data.

Data analysis

1. Analyze general data using percentage, mean, standard deviation, minimum value, and maximum value.

2. Analyze the attitude towards solid waste management. Participation in solid waste management Information perception about solid waste management and solid waste management behavior in dormitories of nursing students by using mean (Mean) and standard deviation (Standard Deviation)

3. Analyze the factors influencing the solid waste management behavior in nursing students' dormitories using multiple regression statistics to import stepwise variables (Stepwise) before the analysis of multiple regression statistics. The researcher passed the Assumption (Hair, J. F., Babin, B. J., Anderson, R. E., & Black, W. C. (2019) test of the statistics used as follows.

3.1 The distribution of data is a normal curve and independent variables, and dependent variables have a linear relationship. Considering the Normal Probability Plot graph, it was found that most of the data are around straight lines. Therefore, it can be concluded that the nature of the data is normally distributed.

3.2 The test for variance of constant tolerance must be unity, and the data has no outliers. Considering the scatter plot, it is found that the distribution of points away from the straight line is symmetrical and is between ± 3.

3.3 Each of the independent variables had no high co-linear correlation by considering the Tolerance between .61-.96 and VIF between 1.03 – 1.62.

3.4 There is no relationship error problem based on the value Durbin-Watson equals 1.89.

Research considerations

This research was considered by the research committee of Boromarajonani College of Nursing, Changwat Nonthaburi Certificate No. COE 65/010, on 18 April 2022.

Research results

1. General information of the sample It was found that most of them were female 95.4% with an average age of 40.17 years, 28.2% of them were first-year students, 24% of second-year students, 25.4% of third-year students and 22.3% of fourth-year students (Table 1).

Table 1 General information of the sample

General information	data (n=524)	%
1. Gender		
Male	24	4.6
Female	500	95.4
2. Age ($\bar{x}$=20.03, SD=1.83, Min=17, Max= 35)		
3. nursing students		
first-year students	148	28.2
second-year students	126	24.0
third-year students	133	25.4
fourth-year students	117	22.3

2. The level of factors affecting the behavior of solid waste management in the dormitories of nursing students. It was found that all variables were at a high level except participation in solid waste management with the highest mean being the attitude toward solid waste management as shown in Table 2.

Table 2 Descriptive statistics of Behavior of Solid Waste Management in the dormitory of Nursing Students

Factors	$\bar{x}$	SD	results
1. Information perception about solid waste management	4.01	.63	High
2. Participation in solid waste management	3.38	.84	Moderate
3. Attitude towards solid waste management	4.13	.67	High
4. Behavior of solid waste management in dormitory of nursing students	3.90	.59	High

3. The factors influencing the solid waste management behavior in the nursing students' dormitory were information perception about solid waste management, participation in solid waste management, and attitude towards solid waste management, which could explain the variance by 54.50% (adj.R^2=.542, p <.001). There is statistical significance at the .001 level as shown in Table 3.

Table 3 The significant parameters of Behavior of Solid Waste Management in dormitory of Nursing Students

Factors	B	SE	Beta	t	p-value
Intercept	20.402	1.847			<.001
Information perception about solid waste management	.616	.045	.482	12.575	<.001
Participation in solid waste management	.257	.032	.245	8.121	<.001
Attitude towards Solid Waste Management	.349	.055	.240	6.344	<.001
$R = .738$ $R^2 = .545$ adj.$R^2 = .542$ $SE._{est} = 6.0$					

Discussion

The waste management behavior in the dormitories of nursing students is generally rated as high (M = 3.90, SD = 0.59). This is because behavior is a response to stimuli, both internal and external, that triggers an individual's reaction, which can either be observable or not. To develop such behavior, institutions must have appropriate policies and programs in place, coordinating with relevant parties to raise awareness among students about waste management. This should include providing facilities that encourage students to engage in waste segregation and reduction, such as providing suitable and sufficient waste sorting equipment and spaces, promoting waste reduction through line groups or public announcements, and educating students about waste segregation.

The findings of this study align with the study by Chachvarat et al. (2018), which found that nursing students' waste management behavior was at a moderate level (81.3%). When broken down, the behavior students engaged in least was the repurposing of usable waste.

Factors influencing waste management behavior in nursing students' dormitories include awareness of waste management information, participation in waste management, and attitudes toward waste management. These factors explained 54.50% of the variance (adj. $R^2 = .542$, $p < .001$), statistically significant at the 0.001 level. It was found that the awareness of waste management information (Beta = .482) is a process where nursing students receive and understand information from various sources, including media, faculty, housekeeping staff, and college policy announcements, all of which encourage students to engage in waste segregation and reduction. Information awareness involves four stages 1) Choosing to receive information from different sources. 2) Focusing on information that aligns with existing attitudes and avoiding conflicting or irrelevant information. 3) Understanding information based on individual attitudes, experiences, and current context. 4) Remembering only information that matches one's needs, interests, and attitudes.

Participation in waste management also influences behavior (Beta = .245), as students must voluntarily engage in waste management activities, which aligns with Chachvarat et al. (2018), who found that participation in waste management is crucial for fostering proper waste handling behavior. Moreover, this supports the theory of planned behavior, which posits that individual behavior is influenced by intention, which in turn is affected by attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). Participation can be seen as both an expression of intention and a pathway through which students internalize positive norms related to waste management.

Attitudes toward waste management significantly impact students' waste management behavior (Beta = .240). Attitudes are a key individual factor, representing personal feelings and beliefs toward specific situations or subjects, which guide responses such as approval, support, or opposition. When students have a positive attitude toward waste management, their behavior improves accordingly, as confirmed by Kaewboonchu (2019), who studied the factors influencing waste sorting behavior at the household level. Her study found that knowledge and attitudes significantly impacted waste sorting behavior.

ISSN 2673-0200 (print) ISSN 2673-0251 (online)

Conclusion

Factors influencing waste management behavior in dormitories of nursing students is an intrinsic factor that contains an attitude of participation Therefore, colleges should encourage participation in waste sorting activities, reducing waste, providing information about correct waste management, and creating a good attitude towards solid waste management. It will improve the students' waste management behavior. This will affect the quality of life of students sustainably living in dormitories.

Implications for Future Research

Future studies could explore further the role of institutional policies and coordination in shaping waste management behaviors among nursing students. It would be valuable to investigate how different types of awareness programs, including digital platforms and hands-on initiatives, influence students' participation and waste reduction efforts. Additionally, examining the long-term impact of attitudinal changes and their correlation with actual waste management behavior would provide insights into sustainable behavioral change. Future research could also expand to other student populations or residential settings to generalize findings and assess the effectiveness of various waste management models. Furthermore, the relationship between socio-demographic factors and waste management behavior could be explored to identify target groups for more effective interventions.

Recommendations for Future Research

1. Other supporting factors that affect solid waste management behavior in nursing students' dormitories should be studied, for example, solid waste management knowledge supporting factors conducive to solid waste management.

2. A study on behavioral modification of solid waste management in nursing students' dormitories should be studied with operational research methodologies or research and development to support appropriate management and behaviors in the future.

References

Adeniran, A. E., Nubi, A. T., & Adelopo, A. O. (2017). Solid waste generation and characterization in the University of Lagos for a sustainable waste management. *Waste Management, 67*, 3-10. https://doi.org/10.1016/j.wasman.2017.05.002

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020T

Boonjun S, & Phetphum C. (2018). Factors affecting behavior in solid waste separation among housewives in Bungphra sub diatrict , Muang district, Phitsanulok province. *Journal of Graduate Studies Valaya Alongkorn Rajabhat university, 12*(1), 180-190. (in Thai).

Chachvarat, T., Kaewjiboon, J.& Waengkam, W. (2018). Perception and behavior on waste management of nursing students at Boromarajonani College of Nursing, Phayao. *Nursing Public Health and Education Journal, 19*(2), 168-192. (in Thai)

Faul, F., Erdfelder, E., Lang, A.G. & Buchner, A. (2007) G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behavior Research Methods, 39, 175-191.http://dx.doi.org/10.3758/BF03193146

Hair, J. F., Babin, B. J., Anderson, R. E., & Black, W. C. (2019). Multivariate Data Analysis (8th ed.). England: Pearson Prentice.

Kaewboonchu, W., Mahaarcha, W., Woraphong, S. & Ketsil, T. (2018). Factors affecting household waste separation behavior of people in Donmueang Bangkok. Nakhon Pathom: Mahidol University. (in Thai)

Loysak, B., Srithahai, J. & Chonlatankampanat, W. (2020). Model of Participation among Faculties, Staff, and Students in solid waste management at Phrapokklao Nursing College, Chanthabur. *Journal of Phrapokklao Nurrsing College*, *31*(1), 154-166.

Pan, Y., Li, M., Guo, H., Li, Y. & Han, J. (2022). Influencing factors and reduction of domestic solid waste at university dormitory in Shanghai, China. *Sci Rep 12*, 570. https://doi.org/10.1038/s41598-021-04582-0

Pollution Control Department. (2022). Knowledge: "Strengthening the capacity of local administrative organizations in environmental management". Ministry of Natural Resources and Environment. Bangkok. (in Thai)

Rattanakanahutanon, F., Duangpratoom, N. & Sirirat, C. (2024). Factors associated with household solid waste management behavior, Khlong Khwai Sub-district, Pathum Thani Province. *Regional Health Promotion Center 9 Journal, 18*(3), 879-890.

Sangpithak, W., Janhong, K., Wanish, W., & Padklang, S. (2021). Factors Influence Behavior of Waste Disposal Management of Nursing Student, Boromarajonnani College of Nursing, Bangkok. *Journal of Health and Nursing Research, 37*(2), 286-298. (in Thai)

Wongratana, C. (2010). Techniques for using statistics for research (12th ed.). Bangkok: Thanbundit. (in Thai)

Yuenyong, N. & Ngerndeecharoen, P. (2022). Public participation in solid waste management in Sam Panieng Sub-District, Non Daeng District, Nakhon Ratchasima Province. *Journal of Academic and Research, Northeastern University, 12*(2), 279-297.