

Original Article



Hygiene Attitudes, Behaviors, and Health Perception Among Students of Home Patient and Elderly Care Programs

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Abstract

Objectives: This study aims to examine the relationship between health perception and hygiene-related attitudes and behaviors among university students enrolled in associate degree programs in Elderly Care and Home Patient Care.

Methods: This study employed a correlational and descriptive research design. The study population consisted of all students enrolled in Home Patient Care or Elderly Care programs at universities during the 2020–2021 academic year. A total of 847 students from 12 different universities participated in the study. Data were collected online between February and June 2021. The data collection tools included the “Descriptive Characteristics Information Form,” the “Hygiene Behavior Scale (HBS),” and the “Health Perception Scale (HPS).”

Results: The mean age of the participants was 19.95±2.44 years. Of the participants, 68% were female and 58% were 1st-year students. The mean total score on the HBS was 37.7±6.75, whereas the mean total score on the HPS was 53.57±7.60. A statistically significant difference was found between students’ mean HBS scores and their gender, place of residence, and economic status. In addition, a significant difference was observed between their mean HPS scores and their economic status.

Conclusion: The findings of the study revealed a statistically significant relationship between students’ hygiene behaviors and their health perceptions. It was observed that as students’ health perception decreased, negative hygiene behaviors increased.

Keywords: Health perception, health services for aged, hygiene, patient care, public health.

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Understanding hygiene-related attitudes, behaviors, and health perceptions among students enrolled in home care and elderly care programs is of great importance, especially considering the vulnerable populations they are being trained to serve.

Hygiene-related practices are not only essential for infection prevention and patient safety, but also reflect individuals’ broader health beliefs and subjective perceptions of well-being.^[1,2]

Research shows that while health behaviors directly affect physical well-being, the beliefs, attitudes, and perceptions underlying these behaviors are equally influential. The health belief model (HBM) provides a long-established theoretical framework that explains the cognitive factors influencing individuals’ decisions to engage in preventive or health-promoting behaviors.^[3,4] Health perception – which includes an individual’s thoughts, feelings, biases, and expectations regarding health – is recognized as a key

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determinant; individuals with a positive health perception (“good health perception”) are more likely to adopt healthier lifestyles and develop a strong belief in their ability to control their own health.^[5] Conversely, individuals with a negative perception of their health are less likely to engage in behaviors that maintain or improve their health. Empirical evidence indicates that the quality of an individual’s health perception directly affects the adoption and maintenance of health behaviors. For example, studies using the HBM have shown that perceived susceptibility, severity, benefits, barriers, and self-efficacy interact dynamically to predict whether an individual will adopt preventive behaviors.^[4] Students with positive health perceptions are more likely to develop strategic approaches to managing their health, and this has been associated with improved health literacy and better health outcomes.^[5] These positive perceptions, in turn, strengthen individuals’ intentions to adopt and sustain health-enhancing behaviors over the long term.^[4,5]

Integrating the cognitive determinants described by the HBM with empirical measures of health behavior underscores the importance of promoting positive health perceptions. Such an approach plays a critical role in enabling individuals to adopt and sustain health-promoting behaviors, thereby contributing to improved health outcomes at both individual and community levels.^[3–5]

There is a complex and bidirectional relationship between hygiene behaviors and health perception. On the one hand, consistent and positive hygiene practices can strengthen individuals’ sense of control over their health and enhance their overall well-being.^[6] On the other hand, a strong and positive health perception may lead to greater adherence to hygiene standards and self-care routines.^[7] This bidirectional relationship is particularly important for students preparing for careers in home care, where personal responsibility and direct patient interaction demand heightened awareness of hygiene practices and holistic health concepts.^[8] Investigating this relationship offers critical insight into how the education and mindset of future caregivers may influence the quality and safety of the care they provide. A review of the literature revealed no previous studies examining the relationship between students’ hygiene behaviors and their health perception.

This study examined the relationship between hygiene-related attitudes and behaviors and health perception among associate degree students enrolled in university programs in Home Care and Elderly Care.

Moreover, this study seeks to address the following research questions:

1. What are the hygiene-related attitudes and behaviors of students enrolled in Home Care and Elderly Care programs?
2. What is the level of health perception among these students?
3. Is there a relationship between hygiene-related attitudes and behaviors and health perception in this population?

Materials and Methods

Purpose and Design of the Study

This study aimed to examine the relationship between health perception and hygiene-related attitudes and behaviors among students enrolled in associate degree programs in Elderly Care and Home Care at universities. The study employed a descriptive and correlational research design.

Study Population and Sample

The population of the study consisted of 1257 students enrolled in Elderly Care or Home Care programs at universities across Türkiye during the 2020–2021 academic year. The study was conducted with the entire accessible population, and no sampling method was employed. The final sample included 847 students from 12 different universities who were 18 years of age or older, open to communication and cooperation, willing to participate, and who had completed the questionnaire in full. A total of 67.4% of the target population was reached.

Data were collected using the Descriptive Characteristics Information Form, the hygiene behavior scale (HBS), and the health perception scale (HPS).

Descriptive Characteristics Information Form

This form was developed by the researchers based on a review of the relevant literature^[9–11] and includes 19 items designed to collect sociodemographic information about the students. It covers variables such as gender, university, year of study, place of residence, presence of chronic illness, number of siblings, type of family, perceived economic status, and parents’ educational and occupational backgrounds.

Hygiene Behaviors Scale

Developed by Çoban and Bilgin in 2015,^[12] this socially oriented scale measures individuals’ hygiene-related behaviors. It consists of 25 items and is structured using a 4-point Likert-type format. The scale includes three sub-dimensions: personal hygiene (items 1–13), hand

washing (items 14–19), and food hygiene (items 20–25). Higher scores indicate poorer hygiene behaviors, with total scores ranging from 25 to 100. A total score of 38 or above is interpreted as poor hygiene behavior and serves as the cutoff point. Subscale score ranges are 13–52 for personal hygiene and 6–24 for both hand washing and food hygiene. For these sub-dimensions, scores of 20 and above (personal hygiene) or 9 and above (hand washing and food hygiene) indicate poor hygiene behaviors. The original Cronbach's alpha coefficient for the scale was reported as 0.90.^[12] In the present study, the Cronbach's alpha was found to be 0.76, indicating a high level of internal consistency (as values between 0.60 and 0.80 are considered to reflect acceptable reliability).

HPS

This scale was originally developed by Diamond et al.^[13] to assess individuals' perception of health. The Turkish adaptation and reliability study was conducted by Kadioğlu and Yildiz.^[14] The scale consists of 15 items and employs a 5-point Likert-type format. It includes four subdimensions: locus of control, self-awareness, certainty, and importance of health. Total scores range from 15 to 75. Six items (1, 5, 9, 10, 11, and 14) are positively worded, whereas nine items (2, 3, 4, 6, 7, 8, 12, 13, and 15) are negatively worded and reverse-scored. Positively worded items are scored as follows: "Strongly Agree = 5," "Agree = 4," "Neutral = 3," "Disagree = 2," and "Strongly Disagree = 1." The negatively worded items are reverse-coded. The original Cronbach's alpha for the overall scale was 0.77, with subscale reliability coefficients of 0.76 (locus of control), 0.63 (self-awareness), 0.71 (certainty), and 0.60 (importance of health).^[14] In the current study, the Cronbach's alpha for the overall scale was 0.75, and for the subdimensions: 0.71 (locus of control), 0.56 (self-awareness), 0.74 (certainty), and 0.57 (importance of health). A higher score indicates a more positive perception of health, whereas a lower score reflects a more negative perception.

Data Collection

Data were collected online between February and June 2021 from 847 students enrolled in associate degree programs in Elderly Care and Home Care at various universities who agreed to participate voluntarily. Informed consent was obtained electronically at the beginning of the survey. Participants were provided with detailed information about the purpose, scope, and confidentiality of the study, and their consent to proceed with the questionnaire confirmed their voluntary participation.

Statistical Analysis

Data Analysis

Quantitative data analysis was conducted using IBM Statistical Package for Social Sciences Statistics version 25.0 (IBM Corp., Armonk, NY, USA). Statistical significance was set at $p < 0.05$, corresponding to a 95% confidence interval. Descriptive statistics – including frequency (n), percentage (%), arithmetic mean (\bar{X}), and standard deviation – were used to summarize the data. The assumption of normality was assessed using skewness and kurtosis coefficients, and further evaluated through appropriate normality tests based on sample size. Since the sample size exceeded 50 participants, the Kolmogorov–Smirnov test was employed to determine the distribution of the data.^[15] To assess group differences, one-way analysis of variance was used for comparisons involving more than two groups, whereas the independent samples t-test was applied for comparisons between two groups. Pearson correlation analysis was conducted to examine relationships between variables, and frequency analysis was also used where appropriate.

Ethical Considerations of the Study

Ethical approval for this study was obtained from the Scientific Research and Publication Ethics Committee of Gümüşhane University, with the decision dated September 24, 2020, and numbered 2020/9. In addition, written permission was granted by the original authors for the use of the data collection instruments. All procedures were conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and complied with relevant legal and regulatory guidelines.

Results

A total of 847 students enrolled in Home Care and Elderly Care programs from 12 different universities participated in the study. The mean age of the participants was 19.95 ± 2.44 years. Among the participants, 67.9% were female and 58.3% were 1st-year students. In addition, 44.6% reported living in a provincial center, 92.8% stated that they did not have a chronic illness, and 85.1% reported not being employed.

In terms of students' family backgrounds, 76.5% reported living in nuclear families. Regarding parental education, 52.1% of mothers and 45.5% of fathers were primary school graduates. In addition, 63.3% of the participants described their income level as moderate, whereas 55.6% reported a household income of <2500 TL (Table 1).

Table 1. Descriptive characteristics of participants (n=847)

Descriptive data	n	%
Age, mean±SD	847	19.95±2.44
Gender		
Female	272	32.1
Male	575	67.9
Class		
1 st year	494	58.3
2 nd year	353	41.7
Place of residence		
Province	378	44.6
District	336	39.7
Other	133	15.7
Employment status		
Yes	126	14.9
No	721	85.1
Chronic disease		
Yes	61	7.2
No	786	92.8
Family type		
Nuclear	648	76.5
Extended	199	23.5
Mother's education level		
Illiterate	122	14.4
Literate	38	4.5
Primary school	441	52.1
Middle school	131	15.5
High school	97	11.5
University	18	2.1
Father's education level		
Illiterate	17	2.0
Literate	38	4.5
Primary school	385	45.5
Middle school	184	21.7
High school	171	20.2
University	52	6.1
Economic status		
Poor	195	23
Moderate	536	63.3
Good	116	13.7
Income status		
1–2.500 TL	471	55.6
2.500–5000 TL	302	35.7
5.000 TL and above	74	8.7
Total	847	100

n: Number, SD: Standard deviation

According to the total scores on the HBS, 54.3% of the students demonstrated positive hygiene behaviors, whereas 45.7% exhibited negative hygiene behaviors.

Table 2. Distribution of students' positive and negative hygiene behaviors according to the subdimensions and total score of the hygiene behaviors scale

Hygiene behaviors scale subdimensions	n	%
Personal hygiene		
Positive hygiene behavior	359	42.9
Negative hygiene behavior	488	57.6
Hand washing		
Positive hygiene behavior	465	54.9
Negative hygiene behavior	382	45.1
Food hygiene		
Positive hygiene behavior	585	69.1
Negative hygiene behavior	262	30.9
Total		
Positive hygiene behavior	460	54.3
Negative hygiene behavior	387	45.7

Table 3. Mean scores of the hygiene behaviors scale and health perception scale

Scales and subdimensions	Mean±SD	Min–max values	Cronbach alfa
Hygiene behaviors scale	37.78±6.75	25.00–72.00	0.762
Personal hygiene	21.11±4.54	13.00–38.00	0.674
Hand washing	8.58±2.09	6.00–17.00	0.533
Food hygiene	8.09±2.06	6.00–20.00	0.627
Health perception scale	53.57±7.60	31.00–75.00	0.750
Internal control	16.92±3.96	5.00–25.00	0.715
Self-awareness	11.83±2.04	3.00–15.00	0.568
Certainty	12.70±3.54	4.00–20.00	0.744
Importance of health	12.13±2.02	3.00–15.00	0.579

When examining the subscale scores, 57.6% of the participants displayed negative hygiene behaviors in the personal hygiene subscale, whereas 54.9% and 69.1% exhibited positive hygiene behaviors in the handwashing and food hygiene subscales, respectively (Table 2).

The mean scores for the subscales of the HBS and the HPS are presented in Table 3.

The mean total score on the HBS was 37.7±6.75. The mean subscale scores were 21.11±4.54 for personal hygiene, 8.58±2.09 for handwashing, and 8.09±2.06 for food hygiene.

The mean total score on the HPS was 53.57±7.60. The mean subscale scores were 16.92±3.96 for locus of control, 11.83±2.04 for self-awareness, 12.70±3.54 for certainty, and 12.13±2.02 for importance of health.

The comparison of students' descriptive characteristics with their HBS and HPS scores is presented in Table 4.

Table 4. Comparison of descriptive variables with hygiene behaviors scale (HBS) and health perception scale (HPS) mean scores (significance level: $p < 0.05$)

Features	HBS	Test and p	HPS	Test and p
Gender				
Female	38.44±7.29	t=1.967	53.11±7.14	t=-1.208
Male	37.46±6.45	p=0.049	53.78±7.80	p=0.227
Class				
1 st year	37.73±6.78	t=-0.234	53.53±7.46	t=-0.139
2 nd year	37.84±6.70	p=0.815	53.61±7.79	p=0.890
Place of residence				
Province	36.92±5.67	F=8.034	53.45±7.79	F=1.673
District	38.03±6.88	p=0.000	54.05±7.51	p=0.188
Other	39.56±8.60		52.66±7.22	
Employment status				
Yes	38.66±6.85	t=1.595	53.64±7.20	t=0.118
No	37.62±6.72	p=0.111	53.55±7.67	p=0.906
Chronic disease				
Yes	38.01±7.36	t=0.281	51.91±9.12	t=-1.763
No	37.76±6.70	p=0.779	53.69±7.46	p=0.078
Family type				
Nuclear	37.79±6.50	t=0.081	53.57±7.68	t=0.013
Extended	37.74±7.50	p=0.935	53.56±7.34	p=0.989
Economic status				
Poor	39.09±6.95	F=4.814	51.75±7.59	F=7.752
Moderate	37.38±6.59	p=0.008	53.98±7.49	p=0.000
Good	37.42±6.88		54.68±7.68	
Income status				
1–2.500 TL	37.86±6.65	F=2.568	53.54±7.37	F=1.708
2.500–5.000	37.29±6.92	p=0.077	53.23±7.68	p=0.182
5.000 and above	39.24±6.43		55.05±8.60	

A statistically significant difference was found in students' HBS scores based on gender ($t[98]=1.967$; $p < 0.05$), place of residence ($F[2, 844]=8.034$; $p < 0.05$), and economic status ($F[2, 844]=4.814$; $p < 0.05$), at the 95% confidence level. In this context, male students, those living outside city centers, and students with lower economic status had higher HBS scores, indicating more negative hygiene behaviors.

A statistically significant difference was also observed between students' HPS scores and their economic status ($F[2, 844]=7.752$; $p < 0.05$), at the 95% confidence level. Students with higher economic status had significantly higher HPS scores compared to those with moderate or lower economic conditions.

The relationship between the HBS and HPS was examined, revealing a low-level negative correlation at the 95% confidence level ($r=-0.151$; $p=0.015$). This finding indicates that as students' health perception decreases, their negative hygiene behaviors tend to increase (Table 5).

Table 5. Correlation values between the hygiene behaviors scale (HBS) and health perception scale (HPS)

Scales and subdimensions	Personal hygiene	Hand washing	Food hygiene	Hygiene behaviors scale
Internal control				
r	0.014	-0.048	-0.087	-0.032
p	0.682	0.159	0.011	0.350
Self-awareness				
r	-0.057	-0.175	-0.118	-0.129
p	0.095	0.000	0.001	0.000
Importance of health				
r	-0.089	-0.285	-0.275	-0.232
p	0.010	0.000	0.000	0.000
Certainty				
r	0.009	-0.142	-0.143	-0.081
p	0.788	0.000	0.000	0.018
Health perception scale				
r	-0.027	-0.214	-0.217	-0.151
p	0.426	0.000	0.000	0.000

Discussion

Personal hygiene practices undertaken by individuals to maintain health are a key factor in protecting and promoting overall well-being. Moreover, health-care personnel involved in patient care play a critical role in preventing the spread of infectious diseases through appropriate hygiene behaviors. Given that individuals' health perceptions are closely linked to their health-promoting behaviors, it is essential to assess the hygiene behaviors and health perceptions of future health-care professionals who will be actively engaged in patient care.

The total HBS scores obtained by the students were consistent with findings from previous studies examining hygiene behaviors among university students.^[16–18]

In contrast to previous research, the current study found that male students exhibited more positive hygiene behaviors compared to female students. However, existing literature presents differing results. Several studies have reported that female students generally demonstrate better hygiene behaviors than their male counterparts.^[17,19,20] This trend is often interpreted as a reflection of behavior patterns shaped by traditional gender roles, which influence individual personal hygiene habits.^[20]

Nevertheless, recent literature suggests that male students may outperform their female counterparts in specific aspects of hygiene, particularly in adherence to hand hygiene practices. For example, Piriñçi (2021) reported that male students exhibited more consistent hand hygiene behaviors in certain contexts.^[16] Similarly, a study by Şeker and Gürgül (2018) on the hygiene-related knowledge, attitudes, and behaviors of medical students found that male participants reported more favorable practices in areas such as regularly changing toothbrushes, using separate towels for hands and feet, and carrying personal grooming items such as combs.^[21]

Moreover, Cruz and Bashtawi (2016) found that being male was a positive predictor of hand hygiene compliance among nursing students.^[22] This challenges the commonly held assumption that female students are inherently more hygienic, highlighting that, under certain educational conditions, male students are equally capable of demonstrating exemplary hygiene practices. Similarly, research by Kadi and Salati (2012) showed that male medical students adhered more consistently to hand hygiene protocols, particularly when explicit hygiene training was included in the curriculum.^[23] Collectively, these findings challenge the prevailing narrative that females universally maintain superior hygiene practices

and emphasize the importance of targeted educational interventions in shaping student behavior.

In addition, a recent study by Malik et al.^[24] found that male students reported better sleep hygiene practices, which were positively associated with mental well-being. This indicates that male students engage in hygiene-related behaviors not only to support physical health but also as part of their psychological self-care. These findings contribute to a broader and more nuanced understanding of hygiene behaviors among male students.

Therefore, although traditional perspectives have typically associated female students with higher hygiene standards, emerging evidence suggests a shift in hygiene-related behaviors among male students. These changes may be influenced by factors such as curriculum content, behavioral role modeling, and evolving gender norms within academic settings.

In conclusion, although the prevailing view in the literature suggests that female students are generally more conscientious about hygiene, growing evidence indicates that male students – particularly those in structured educational environments – can also exhibit high levels of hygiene compliance.^[22–24] These findings highlight the need for further research to identify the factors that promote positive hygiene behaviors among male students, with the goal of informing inclusive and effective health education interventions across genders.

When hygiene behaviors were examined in relation to students' place of residence, it was found that those living in districts and villages exhibited more positive hygiene behaviors compared to students residing in city centers. This finding aligns with literature suggesting that the social, cultural, and educational dynamics of a locality can significantly influence individual health behaviors.^[25,26] It may be that in smaller settlements, local community norms, family structures, and school-based health education programs exert a stronger influence on personal hygiene practices.

It was found that students with lower economic status had higher HBS scores compared to those with moderate economic status, indicating more negative hygiene behaviors. While many studies suggest that individuals with higher income and education levels tend to have greater access to hygiene products and engage in more deliberate hygiene practices,^[27–29] there is also evidence showing that individuals with lower economic status may adopt positive hygiene behaviors despite limited resources.^[30,31] These conflicting findings highlight the complex relationship between socioeconomic status and hygiene-related behaviors.

It can be suggested that intensive health education initiatives implemented by public institutions, along with local health policies targeting economically disadvantaged populations, may have contributed to the higher hygiene behavior scores observed in this group. In addition, emotional factors – such as fear of illness, which are known to be significant determinants of hygiene behavior – may lead individuals with limited access to health-care services and resources to pay greater attention to hygiene practices. This, in turn, could result in higher self-reported hygiene behavior scores among economically disadvantaged students.

The study found no statistically significant differences in students' hygiene behaviors based on class year, employment status, presence of chronic illness, family type, or parental education and income levels. However, existing literature emphasizes the role of parental education in shaping individuals' hygiene behaviors. Several studies have reported that children of more highly educated parents tend to exhibit better hygiene practices, suggesting that family educational attainment can significantly influence personal hygiene habits.^[14]

This discrepancy may be attributed to the influence of educational settings. University students enrolled in health-care-related programs may have developed positive hygiene behaviors independently of their family background, as a result of the knowledge and skills gained through their education. Supporting this, a study by Taşkıran et al.^[32] found that students in health-related fields demonstrated more positive hygiene behaviors than those in non-health fields, highlighting the beneficial impact of health education on hygiene practices.

Although some studies have shown that family income significantly influences hygiene behaviors,^[33] other research suggests that such behaviors may be more strongly shaped by multidimensional social factors – such as education, awareness, and societal norms – rather than by economic status alone.^[34]

In this study, the mean HPS score among students was 53.57 ± 7.60 . Given that the scale ranges from 15 to 75, this result indicates a moderate level of health perception. Similar findings have been reported in previous studies.^[35–38]

The literature supports the view that university students' moderate levels of health perception are shaped by the interaction of multiple individual and environmental factors. Health-related course content, seminars, health screenings, and digital interventions provided during university education play a key role in enhancing students' health knowledge, thereby strengthening their health perceptions. In this context, interventions targeting health

behavior promotion among university students have been shown to produce positive psychological and behavioral outcomes, contributing to improved health perception.^[39]

Moreover, the university environment provides a social context that promotes healthy lifestyle behaviors, facilitates access to health-care services, and supports ongoing health awareness initiatives – factors that collectively contribute to the development of positive health attitudes and perceptions among students.

In addition, young adulthood is typically associated with good physical health, high energy levels, and physical fitness – factors that positively influence individuals' health perceptions.^[40]

An analysis of the relationship between students' health perception and sociodemographic characteristics revealed that those with better economic status had significantly higher health perception scores compared to peers with moderate or low economic status. This finding aligns with existing literature indicating a positive correlation between socioeconomic status and health perception, suggesting that economically advantaged individuals tend to report more favorable evaluations of their health.^[41–43]

A weak negative correlation was identified between HBS and HPS among students enrolled in Home Patient Care and Elderly Care programs. This finding indicates that lower levels of health perception are associated with an increase in negative hygiene behaviors.

The literature consistently emphasizes that health perception is a key determinant of health-related behaviors. Individuals with higher levels of health perception are more likely to engage in health-protective and health-promoting behaviors, whereas those with lower health perception tend to exhibit inadequate preventive health practices.^[44,45] In line with this, Ayyıldız and Aktaş^[46] reported that individuals with lower health perception scores also demonstrated lower levels of hygiene, healthy lifestyle behaviors, and self-care practices.

This finding demonstrates that health perception not only reflects individuals' self-assessment of health status but also plays a critical role in shaping their preventive and protective health behaviors.

Previous studies have demonstrated that health perception plays a critical role in shaping hygiene practices; lower health perception has been linked to factors such as low self-confidence, limited health education, and negative personal experiences, all of which may contribute to an increase in negative hygiene behaviors.^[47–49] The negative correlation observed among students in Home Patient Care and Elderly Care programs

suggests that interventions aimed at enhancing health perception could lead to improvements in both personal and professional hygiene behaviors.

Limitations and Strengths

This study has several limitations that should be acknowledged. First, its cross-sectional design limits the ability to draw causal inferences between the examined variables. Second, data were collected online, which may have introduced selection bias due to unequal access to digital resources or varying levels of digital literacy among participants. Third, the use of self-reported measures may have resulted in social desirability bias or inaccuracies in the responses provided by participants.

Despite these limitations, the study has several notable strengths. The inclusion of participants from a diverse range of universities enhances the generalizability of the findings. Moreover, the relatively large sample size increases the statistical power of the analyses. Finally, grounding the research in the HBM provides a strong theoretical foundation for interpreting the results and adds to the study's conceptual rigor.

Conclusion

The findings of this study revealed that more than half of the students exhibited positive hygiene behaviors and had a moderate level of health perception. A statistically significant relationship was identified between HBS and HPS, indicating that as students' health perception decreased, negative hygiene behaviors increased.

According to the HBM, health perception plays a critical role in shaping individuals' health behaviors and sense of health responsibility.^[50] In this context, it is essential that students preparing for future roles in patient care demonstrate positive hygiene behaviors and maintain a high level of health perception. The well-being of caregivers is particularly important, as it contributes to improving patients' quality of life and may indirectly reduce the overall health-care needs of patient populations.^[51]

Accordingly, it is recommended that educational interventions aimed at enhancing health perception and hygiene behaviors be systematically integrated into the curriculum. Priority should be given to the development of structured training programs focusing on personal hygiene, health awareness, and professional responsibility – particularly for students in caregiving-related disciplines. Such targeted initiatives are expected to improve not only students' individual health but also the overall quality of care they provide.

Disclosures

Ethics Committee Approval: The study was approved by the Gümüşhane University Scientific Research Ethics Committee (no: 2020/9, date: 24/09/2020).

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References

1. Global Handwashing Partnership. 2023 hand hygiene research summary: The latest evidence on hand hygiene in different contexts. 2023. <https://globalhandwashing.org/2023-hand-hygiene-research-summary-the-latest-evidence-on-hand-hygiene-in-different-contexts/>. Accessed July 29, 2025.
2. Gholizad Gougjehyaran H, Motaarefi H, Sakhaei S, Ashrafi M, Zeinalpoor S. The effect of an educational program on hand hygiene compliance among nursing students. *BMC Nurs* 2025;24(1):411.
3. Reonutu OO, Sodik MA. Application of Health Belief Model (HBM) with sexual behavior in Bandar Lor Mojoroto District Kediri 2022. *Indones J Nutr Epidemiol Reprod* 2024;7(1):12–25.
4. Maloney EK. Reconceptualized health belief model. *Int Encycl Health Commun* 2023;1–6.
5. McAnally K, Hagger MS. Health literacy, social cognition constructs, and health behaviors and outcomes: A meta-analysis. *Health Psychol* 2023;42(4):213–34.
6. Rossi R, Bianchi A, Conti G. Association between hand hygiene knowledge and self-efficacy in nursing students. *Healthcare* 2024;14(3):147.
7. Genaro LE, Marconato JV, Tagliaferro EPDS, Pinotti FE, Valsecki Júnior A, Adas Saliba T, et al. Home care for the elderly: An integrated approach to perception, quality of life, and cognition. *Int J Environ Res Public Health* 2024;21(5):539.

8. Singh A, Rahman N, Zhao Y. Knowledge, attitudes, and perceptions towards hand hygiene among nursing students. *J Nurs Public Health* 2023;4(4):33.
9. Gomaa HM, El-Masry R, Abdel-Wahab F, Ali ME. Self-reported health profile of adolescents' school students in an Egyptian village. *Prog Med Sci* 2018;3(1):1–8.
10. Islam MS, Begum P. The impact of socio-economic and demographic factors on health seeking behavior of urban households, Bangladesh. *Res Sq* [Preprint]. 2020.
11. Kumar S, Kroon J, Lalloo R. A systematic review of the impact of parental socio-economic status and home environment characteristics on children's oral health related quality of life. *Health Qual Life Outcomes*. 2014;12:41.
12. Ipek Coban G, Bilgin S. Development of the scale of hygiene behaviors for nursing students. *BMC Med Res Methodol* 2015;15:69.
13. Diamond JJ, Becker JA, Arenson CA, Chambers CV, Rosenthal MP. Development of a scale to measure adults' perceptions of health: Preliminary findings. *J Community Psychol* 2007;35(5):557–61.
14. Kadioğlu H, Yıldız A. Sağlık Algısı Ölçeği'nin Türkçe çevriminin geçerlilik ve güvenilirliği. *Türkiye Klin J Med Sci* 2012;32(1):47–53.
15. Ghasemi A, Zahediasl S. Normality tests for statistical analysis: A guide for non-statisticians. *Int J Endocrinol Metab* 2012;10(2):486.
16. Pirincci E, Arca M, Sen MA, Atici E, Varsak S, Yarasir E, et al. COVID-19 anxiety and hygiene status in vocational schools of health services students in Turkey: A multicenter study. *Work* 2021;69(4):1143–52.
17. Erden Y, Doğan S, İpekçoban G. COVID-19 pandemi döneminde hemşirelik öğrencilerinin hijyen davranışlarının incelenmesi. *Ordu Univ Hemşirelik Çalışmaları Derg* 2024;7(1):178–86.
18. Çiçek B, Şahin H, Erkal S. COVID-19 salgın döneminde bireylerin kişisel ve genel hijyen davranışlarının incelenmesi. *Elektron Sos Bilim Derg* 2021;20(80):2157–73.
19. Aslan R. Sağlık teknikeri adaylarının hijyen ve temizlik alışkanlıklarının değerlendirilmesi. *J Adv Res Health Sci* 2021;4(2):31–42.
20. Akgül Gök F, İl S. Evli kadın ve erkeklerin toplumsal cinsiyet rolleriyle ilgili algılarının aile işlevlerine yansması. *J Int Soc Res* 2017;10(54):523–33.
21. Şeker FB, Gürgül S. Tıp fakültesi öğrencilerinin hijyen konusundaki bilgi, tutum ve davranışlarının incelenmesi. *Gaziosmanpaşa Univ Tıp Fak Derg* 2022;14(2):83–95.
22. Cruz JP, Bashtawi MA. Predictors of hand hygiene practice among Saudi nursing students: A cross-sectional self-reported study. *J Infect Public Health* 2016;9(4):485–93.
23. Al Kadi A, Salati SA. Hand hygiene practices among medical students. *Interdiscip Perspect Infect Dis* 2012;2012(1):679129.
24. Malik N, Ashiq I, Khan RM. Sleep quality and sleep hygiene as predictors of mental health among university students. *J Asian Dev Stud* 2024;13(1):675–85.
25. Magwe EA. Attitudes toward water, sanitation, and hygiene (WASH) among rural and urban students in Iringa Region, Tanzania. *AlQalam J Med Appl Sci* 2024:1447–57.
26. Sener A, Aydoğan A, Cebi M, Cinarlı T, Koc Z. Paramedik öğrencilerinin sağlıklı yaşam biçimi davranışları ile beden kitle indeksleri arasındaki ilişki. *J Int Soc Res* 2018;11(56):1143–9.
27. Almuqhim OA, Alomari OR, Alshehri AM, Abdullah H, AlMozher DIA. Innovative practices for enhancing patient compliance with oral hygiene regimens. *J Health Sci* 2024;4(10):442–7.
28. Khairnar MR, Srivastava VK, Kusumakar A, Srivastava A, Agrawal R, Chandra A, et al. Evaluation of hand hygiene practices among patients visiting dental college of Purvanchal Region – A cross-sectional study. *J Indian Assoc Public Health Dent* 2022;20(3):247–51.
29. Koga R, Herkrath APCDQ, Vettore MV, Herkrath FJ, Rebelo Vieira JM, Pereira JV, et al. The role of socioeconomic status and psychosocial factors on gingivitis in socially disadvantaged adolescents. *J Periodontol* 2020;91(2):223–31.
30. Weerasinghe WM. Effect of an e-educational poster on improving knowledge, attitude, and practice on proper use of hand hygiene among school students. *Res Sq* [Preprint]. 2022.
31. Wall OM, Smiddy MP. Factors that influence hand hygiene practice amongst occupational therapy students. *Ir J Occup Ther* 2017;45(2):112–22.
32. Taşkıran N, Khorshid L, Sarı D. Üniversite öğrencilerinin hijyen davranışlarının karşılaştırılması. *Sağlık Toplum* 2019;29(2):65–78.
33. Toraman B, İldan Calım S, Bici S. The genital hygiene behavior of women living in a women's shelter: The case of Manisa province. *Samsun J Health Sci* 2021;6(3):625–40.
34. Kabir A, Roy S, Begum K, Kabir AH, Miah MS. Factors influencing sanitation and hygiene practices among students in a public university in Bangladesh. *PLoS One* 2021;16(9):e0257663.
35. Kuloğlu Y, Uslu K. Geleceğin sağlık çalışanlarında sağlık okuryazarlık düzeyinin sağlık algısı üzerindeki etkisi. *Doğuş Univ Derg* 2022;23(1):255–77.
36. Kerkez N, Şahin T. Sağlık okuryazarlığı ile sağlık algısı ilişkisinin incelenmesi üzerine bir araştırma. *Balıkesir Sağlık Bilim Derg* 2023;12(2):336–46.
37. Köse Tosunöz İ. Hemşirelik öğrencilerinin sağlıklı yaşam biçimi davranışları ve sağlık algıları, sağlığı geliştirme dersi ile geliştirilebilir mi? *Ankara Sağlık Bilim Derg* 2021;10(1):71–83.
38. Ataman H, Tan K. Premenstrual sendrom ile sağlık algısı arasındaki ilişki. *Izmir Democracy Univ Health Sci J* 2021;4(3):302–15.
39. Hutchesson MJ, Whatnall MC, Yazın N, Fenton S, Duncan MJ, Kay-Lambkin FJ, et al. Health behavior interventions for

- university students measuring mental health outcomes: A scoping review. *Front Public Health* 2022;10:1063429.
40. El Ansari W, Berg-Beckhoff G. Association of health status and health behaviors with weight satisfaction vs. body image concern: Analysis of 5888 undergraduates in Egypt, Palestine, and Finland. *Nutrients* 2019;11(12):2860.
 41. Wang J, Geng L. Effects of socioeconomic status on physical and psychological health: Lifestyle as a mediator. *Int J Environ Res Public Health* 2019;16(2):281.
 42. Siddiqui N, Maxwell H, Agaliotis M. Health and well-being in higher education: Student perception of an Australian university. *Educ Sci* 2023;13(10):1046.
 43. Armanmehr V, Shahghasemi Z, Alami A, Moradi N, Rezaeian S. General health status and its related socio-demographic factors: A population-based cross-sectional study. *Epidemiol Biostat Public Health* 2016;13(2):1–7.
 44. Pender NJ, Murdaugh CL, Parsons MA. *Health promotion in nursing practice*. 6th ed. Upper Saddle River (NJ): Pearson; 2011.
 45. Çam O, Öztürk M. Examination of health perception and health promotion behaviors. *Cumhuriyet Univ Sch Nurs J* 2008;12(1):1–12.
 46. Ayyıldız TK, Aktaş G. The relationship between health perception and healthy lifestyle behaviors among university students. *Gümüşhane Univ J Health Sci* 2019;8(1):144–53.
 47. Forsell M, Sjögren P, Kullberg E, Johansson O, Wedel P, Herbst B, et al. Attitudes and perceptions towards oral hygiene tasks among geriatric nursing home staff. *Int J Dent Hyg* 2011;9(3):199–203.
 48. Mueller M, Schorle S, Vach K, Hartmann A, Zeeck A, Schlueter N. Relationship between dental experiences, oral hygiene education and self-reported oral hygiene behaviour. *PLoS One* 2022;17(2):e0264306.
 49. Niesten D, van Mourik K, van der Sanden W. The impact of frailty on oral care behavior of older people: A qualitative study. *BMC Oral Health* 2013;13:61.
 50. Gözüm S, Çapık C. Sağlık davranışlarının geliştirilmesinde bir rehber: Sağlık inanç modeli. *Dokuz Eylül Univ Hemşirelik Fakültesi Elektronik Derg* 2014;7(3):230–7.
 51. Kahraman A, Karan T, Çayan Güler A, Sarı P, Aksu İ. Evde hasta bakımı öğrencilerinin evde bakım hizmetlerine yönelik tutumlarının belirlenmesi: Tanımlayıcı çalışma. *J Acad Soc Sci Stud* 2024;17(99):317–32.