

Original Article

The Effect of Hygiene Habits on the State of Illness in Secondary School Students

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Place of Work: The target population of the descriptive study consisted of secondary school students in three central districts affiliated to the Kayseri, Turkey Provincial Directorate of National Education (Talas Toki Sehit Levent Secondary School, Osman Kavuncu Secondary School, Ergenekon Secondary School).

Abstract

Background: The undeveloped and wrong application of hygiene habits is a big problem for the whole world. Improper hygiene habits cause many diseases, including oral and fecal-transmitted diseases. In addition, this situation creates a great cost to the countries. It is known that the investments to be made for the development of hygiene habits are well received.

Methods: The target population of the descriptive study consisted of secondary school students in three central districts affiliated to the Kayseri Provincial Directorate of National Education. The multistage sampling method was used for sampling. In the first stage, the schools of the districts were listed to determine the target population and a school was selected from each district. A total of 2780 students from three schools formed the target population of the research. In the second stage, the sampling method of which the target population is known was used and 514 students formed the sample of the research. The number of students to be included from each school was determined mainly by the number of students in the schools.

Results: 44.7% (n: 230) of the participating students in the study were male and 55.3% (n: 284) of the participating students were female. 30.9% of the students (n: 159) were in the 7th grade. It was determined that the students' personal hygiene score ranged between 7-22 and the average score was 16.6. It was determined that the semester success average of the students with high personal hygiene status scores was higher and this situation was found to be statistically significant ($p < 0.05$). It was seen that the difference between the personal hygiene status score of the students and the status of getting a report from any disease was not statistically significant ($p > 0.05$).

Conclusion: It was determined that the personal hygiene scores of the students were above the average and this situation did not affect their illness.

Keywords: Hygiene, receiving medical report, school health, school nursing

Introduction

The correct acquisition of hygiene habits may prevent the emergence of health problems, and the deficiency in these habits causes diseases. In studies examining the relationship between hygiene and diseases, it has been revealed that 9.1% of the number of illnesses in developing countries can be prevented by improving hygiene habits and spreading clean water. In fact, it has been stated that 6.3% of death rates in developing

countries can be prevented by these ways (Pruss-Ustun, 2008). In the systematic review of Mbalkaya, P.H. Lee, and R.L. Lee (2017) by compiling the studies conducted in African countries, the relationship between the hygiene habits of children aged 6-12 and especially respiratory and digestive system diseases was revealed (Mbalkaya et al., 2017).

Failure to develop and misapplication of hygiene habits is a major problem for the whole world.

Lack of hygiene causes many oral and fecal diseases. Inadequate hygiene habits both negatively affect people's health and cause great costs to countries. It is stated that nine dollars will be recycled for every dollar spent on improving hygiene habits (Brown, Cairncross and Ansink, 2013).

Hygiene is one of the most important ways to prevent diseases. Every year, 1.5 million children die from diarrheal diseases worldwide. 88% of these cases are associated with unsafe water and poor hygiene. The World Health Organization states that the introduction of hygiene habits will significantly reduce the number of deaths (World Health Organization [WHO], 2009).

School-age children mostly suffer from respiratory and digestive system diseases. These diseases are at the forefront of children's applications to the hospital and also cause them to receive a health report that causes absenteeism. Students who are in a closed environment for an average of 6 to 8 hours a day can easily transmit diseases to each other (Bourgeois, Vallim, Wei, McAdam and Mandl, 2006; Neuzil, Hohulbein and Zhu, 2002). It is very important for school-age children to acquire the right hygiene habits, especially habits related with hand hygiene in order to prevent the spread of Covid 19. Washing hands with soap has simple, sustainable, and high health benefits and economic advantages in preventing and controlling infectious diseases in children (Chen et al., 2020). It was aimed to examine the effects of secondary school students' hygiene habits on their illness and their success and disability due to their illness within the context of this research.

Research Questions

- Do students' socio-demographic characteristics affect their personal hygiene habits?
- Do students' hygiene habits affect their disability report?
- Do students' hygiene habits affect their success?
- Does the hygiene habit score of the students affect the disease diagnoses in the reports?

Methods

This research was of descriptive type. The multistage sampling method was used to determine the population and sample of the study. In order to determine the universe in the first stage, the schools of the districts affiliated to the Kayseri Provincial Directorate of National Education were

listed and a school was selected from each district. The target population of the study consisted of 2780 students in total, 1026 of whom were students in Talas Toki Şehit Levent Secondary School in Talas district, 950 of whom were students in Osman Kavuncu Secondary School in Melikgazi, and 804 of whom were students in Ergenekon Secondary School in Kocasinan district,

In the second stage, the sampling method of which the target population is known was used and 514 students formed the sample of the research. The stratified sampling method was used by looking at the number of students in the schools in terms of how many students will be reached from which school (Erdoğan, Nahcivan, and Esin, 2014). In this context, a total of 514 students, 193 people from Talas Toki Martyr Levent Secondary School, 170 people from Melikgazi Osman Kavuncu Secondary School, and 151 people from Kocasinan Ergenekon Secondary School, constituted the sample of the research.

Data collection forms in the study: Personal Information Form, Personal Hygiene Habit Diagnosis Questionnaire, Student Absenteeism and Success Status Evaluation Form were used as data collection tools in this research.

Introductory Information Form: Personal Information Form was prepared by the researcher. This form consists of a total of 6 questions containing personal information of students and their families.

Personal hygiene habit diagnosis questionnaire form of secondary school students: The Personal Hygiene Habit Diagnosis Questionnaire for Secondary School Students consists of two parts. The first part consisted of 11 questions in order to determine the personal hygiene habits of the students. While creating this section, hygiene behavior studies and data collection tools in Turkey were examined. The Personal Hygiene Status questionnaire used by Can, Topbas, and Kapucu (2004) and Yilmaz and Ozkan (2009) in their studies was referred. In the calculation of this section, each desired positive behavior was scored by giving 1, 2, 3 values according to the importance of hygiene habits. Other answers given for each question were evaluated as 0 points. This section was created over a total of 23 points.

Students' absenteeism and success evaluation form: Students' Absenteeism and Success Evaluation Form consists of four questions: health status reports, disabled absenteeism, unexcused absences, and academic achievement grade point

averages. With this form, students' absenteeism and success were determined.

Data collection process: After the data collection tools were created, a preliminary application was made on 20 students studying in a school outside the sample. After the questions were arranged, the data were collected in two stages. Branch and class lists were obtained from the assistant principal in order to distribute the students homogeneously during the first stage process. These students were included in the sample in the last three weeks of the fall semester of the 2015-2016 academic year. Two branches from each class were randomly selected to ensure that the data were representative of each class and the entire school. During the study, the preferred hours were determined by interviewing the school principals, and the data were collected by informing the teachers of the selected classes for the study. Secondary school students filled the Personal Information Form and the Personal Hygiene Habit Diagnosis Questionnaire in approximately 30 minutes under the control of the researcher in the designated classes. In the second stage of data collection, the health status reports, disabled absenteeism, unexcused absences and academic achievement grade averages of the students during the semester break in the fall semester of 2015-2016 were obtained from the school administration. This information was recorded in the Student Absenteeism and Success Evaluation Form.

Ethical Statements: Before the study was conducted, written permission was obtained from the Kayseri Governorship Provincial Directorate of National Education (04.12.2015, 94025929605.E.12524213) and the Bozok University Faculty of Medicine Non-Invasive Clinical Research Ethics Committee (17.04.2016, 04/01). In addition, written informed consent was obtained from the students and their families participating in the study. Since the data collection phase with the questionnaire technique was carried out during the education period and in the classrooms, verbal permission was obtained from the school principals and the teachers in charge.

Statistical Analysis: The analysis of the data was made with the R.3.2.1 (www.r-project.org) program. Whether the distribution of the obtained data was normal or not was evaluated with histogram, q-q graphs and Shapiro-Wilk test, and homogeneity of variance was tested with Levene test. In comparisons between paired groups, independent two-sample t-test was applied for

quantitative variables, and one-way analysis of variance was used for comparisons between groups of more than two. Pearson χ^2 analysis was used for comparisons of categorical data, and Tukey test was applied for multiple comparisons. Significance level was accepted as $p < 0.05$.

Results

Table 1 shows the effect of students' socio-demographic characteristics on the SCI score. According to the findings, a statistically significant difference was found between the gender and father's occupation variables and the students' GCI scores ($p < 0.05$). It was determined that the Personal Hygiene Habit score of the female students was higher than that of the boys, and the Personal Hygiene Habits score of the students whose father was a worker and self-employed was lower than that of the students whose father was a civil servant. In addition, it was determined that the difference between the students' class, the number of siblings they had, the education level of their mothers, their mothers' occupations and the average income of the family and Personal Hygiene Habit scores was not statistically significant ($p > 0.05$).

In Table 2, the effect of the students' Personal Hygiene Habit score on the semester success average is examined. The difference between the students' Personal Hygiene Habit scores and their end-of-term success averages was found to be statistically significant. ($p < 0.05$). This significant difference shows that children with a semester success average above 70 have higher Personal Hygiene Habit scores than children whose semester success average is below 70.

The Personal Hygiene Habit score of the students and the status of the students getting a health report from any disease are given in Table 3. According to the findings obtained from the study, the difference between the students' Personal Hygiene Habit scores of 16 and below and those with 17 and above reporting any disease was not found statistically significant ($p > 0.05$).

The habit of taking a bath and the status of getting a report from any disease of the students are given in Table 4. The difference between the students taking two or more baths a week and getting a report from any disease was found to be statistically significant ($p < 0.05$).

The effect of the students' Personal Hygiene Habit score on the excused absentee students is given in Table 5. There was no statistically significant

difference between the students' Personal Hygiene Habit score and the status of reporting for excused absenteeism ($p>0.05$).

Table 1. The Effect of Students' Socio-Demographical Characteristics on Personal Hygiene Habits (N:514)

Characteristics		Number	Personal Hygiene Habit score	Statistical Values*
Gender	Male	230	16.14 \pm 2.29	0.001
	Female	284	17.02 \pm 2.07	
Grade	5.	133	16.88 \pm 2.18	0.281
	6.	122	16.72 \pm 2.36	
	7.	159	16.40 \pm 2.24	
	8.	100	16.54 \pm 2.01	
Number of siblings	2 and below	254	16.46 \pm 2.43	0.102
	3 and above	260	16.78 \pm 1.98	
Educational Level of student's mother	Literate	21	16.24 \pm 2.72	0.060
	Primary school	184	16.88 \pm 2.04	
	Middle School	125	16.21 \pm 2.29	
	High school	97	16.61 \pm 2.09	
	University	66	16.92 \pm 2.18	
Educational Level of student's father	Literate	20	16.75 \pm 2.24	0.095
	Primary school	135	16.74 \pm 2.08	
	Middle School	113	16.22 \pm 2.34	
	High school	106	16.54 \pm 2.03	
	University	120	16.99 \pm 2.20	
Occupation of the student's mother	Worker	256	15.97 \pm 2.23	0.133
	Officer	104	17.00 \pm 2.41	
	Housewife	132	16.67 \pm 2.15	
Occupation of the student's father	Worker	156	16.34 \pm 2.16 ^a	0.003
	Officer	104	17.06 \pm 2.21 ^b	
	Self-employed	132	16.93 \pm 2.04 ^b	
Average Family Income	1000 TL and below	129	16.63 \pm 2.44	0.242
	1000-2000TL	192	16.43 \pm 2.15	
	2000TL and above	171	16.82 \pm 2.10	

\bar{x} :mean sd: SD: standard deviation, *two-sample t-test was applied for quantitative variables, and one-way analysis of variance was used for comparisons between groups of more than two.

Table 2. The Effect of Students' Personal Hygiene Habit Scores on End of Semester Achievement Average (n:514)

	End of Semester Achievement Average				Statistical Evaluation *
	0-55 \bar{x} SD	55-70 \bar{x} SD	70-85 \bar{x} SD	85-100 \bar{x} SD	
Personal Hygiene Habit Score	15.33 \pm 2.67	16.44 \pm 2.19	16.74 \pm 2.19	16.82 \pm 2.10	0.004

\bar{x} :mean sd:standard deviation *Tukey test

Table 3. The Effect of Students' Personal Hygiene Habits on Getting a Health Report from Any Disease (n:514)*Pearson χ^2

Personal Hygiene Habit Score	Status of Obtaining a Health Report from Any Disease				Statistical Evaluation *	
	Yes		No		X ²	p
	n	%	n	%		
16 and below	49	46.2	188	46.0	0.001	0.978
17 and above	57	56.8	220	54.0		
Total	106	100.0	408	100.0		

Table 4. Effect of Students' Bathing Habits on Getting a Health Report from Any Disease (n:514)

Taking Two or More Baths a Week	Getting a Health Report from Any Disease				Statistical Evaluation *	
	Yes		No		X ²	p
	n	%	n	%		
No	71	66.9	319	77.7	5,771	0.016
Yes	35	34.1	89	22.3		
Total	106	100.0	408	100.0		

*Pearson χ^2 **Table 5. The Effect of Students' Personal Hygiene Habit Scores on Reporting for Excused Absenteeism (n:514)**

Personal Hygiene Habit Score	Status of Receiving a Report on Excused Absenteeism				Statistical Evaluation *	
	4 days and below		5 days and above		X ²	p
	n	%	n	%		
16 and below	120	47.8	11	40.7	0.489	0.484
17 and above	131	53.2	16	59.3		
Total**	251	100.0	27	100.0		

*Pearson χ^2 **The number of n decreased as 251 of the students received a report for excuse da bsenteeism.

Discussion

The effects of students' socio-demographic data such as gender, class, number of siblings, mother's education, father's education, mother's occupation, father's occupation and family's average income on Personal Hygiene Habit scores were discussed. Hygiene habits are primarily taught to students by their families. The student's family and himself can be effective in acquiring these habits (Group, 1999; Onsuz and Hidiroglu, 2008).

In this study, it was observed that the Personal Hygiene Habit scores of female students were higher than male students ($p=0.001$) (Table 2). In other studies conducted in Turkey and around the world, the hygiene habit score of female students is higher than male students (Anderson et al., 2008; Arat, Şimşek and Erdamar, 2014; Kahveci and Demirtas, 2012; Yilmaz and Ozkan, 2009; Unalan, Senol, Ozturk and Erkorkmaz, 2007).

In this study, the difference between the Personal Hygiene Habit score and the occupations of the students' fathers was found to be statistically significant ($p<0.05$). It has been determined that this difference is due to the fact that the personal hygiene habit score of the students whose fathers are civil servants is higher than the personal hygiene habit score of the students whose fathers are a worker and self-employed. Social studies to explain this difference have been examined, but no research has been found to explain the higher hygiene habits of civil servants' children compared to other occupations.

When the students' class, the education of their parents, the number of siblings, the occupation of their mothers and the average income of the family and their personal hygiene habits were compared in this study, it was seen that the difference between the variables was not statistically significant ($p>0.05$). Similar to this study, in the study of Firinci and Ipek Coban (2016), socio-demographic characteristics and hygiene habits of students were evaluated, and the relationship between them was not found statistically significant. However, in the study conducted by Yilmaz and Ozkan (2009), it was concluded that there is a statistically significant difference between the hygiene habits of the students and the education of their mothers, education of their fathers and the number of siblings (Yilmaz and Ozkan, 2009). In addition, in another study conducted by Kaya et al. (2006), it was concluded that there was a statistically significant difference between students' hygiene habits and their

mothers' education levels (Kaya et al., 2006). When this research and other studies were compared, it was thought that the reason for obtaining different results on the subject was related to the period of the study and the different characteristics of the sample group.

The personal hygiene habit scores of the students and their excused absences from school, their school success and their effects on their illnesses were compared. According to the findings obtained from the study, it was seen that the difference between the excused absences of the students from school and the Personal Hygiene Habit score was not statistically significant ($p>0.05$). In addition, when the semester success averages of the students were compared with the Personal Hygiene Habit score, the difference was found to be statistically significant ($p=0.005$). The difference in question is due to the fact that the students with a success average of 70 and above have a higher Personal Hygiene Habit score than the students with a success score below 70. In this study, the school success of students with high Personal Hygiene Habits was found to be high. This result seems to be similar to other studies. It can be thought that the high personal hygiene habits of the students and the students' compliance with certain hygiene rules have a positive effect on their school success and attendance (Mermer et al., 2016; Wang et al., 2017). In Tambekar's (2012) intervention study by having a water tank installed at home and raising hygiene awareness, it was found that the hygiene habits of children between the ages of 6 and 12 changed and school absenteeism decreased by 20% (Tambekar, 2012).

According to the results of some studies, health problems are one of the most important reasons why students are absent from school (Guinan, McGuckinand Ali, 2002; Kula and Yildiz, 2014; Ozbas, 2010). In this study, the difference between personal hygiene habit score and school absenteeism was not found statistically significant. However, the difference between students' hygiene habits and their success was found to be statistically significant. Studies show that increasing hygiene education can make a positive contribution to the problem of students' absenteeism from school. Although not included in the findings of this research, it is included in studies that good hygiene habits will reduce student absenteeism and students with less absenteeism have higher success (Guinan et al., 2002; Kula and Yildiz, 2014; Ozbas, 2010).

Conclusion: The difference between the socio-demographic characteristics of the students, their gender and their father's occupation, and the SCI score was found to be statistically significant ($p < 0.05$). It was observed that the statistical difference between the gender of the students and the personal hygiene habit score was due to the higher scores of the female students than the male students. The statistical difference between the occupations of the fathers of the students and the personal hygiene habit scores is due to the fact that the children whose fathers are civil servants have higher scores than those whose fathers are workers and self-employed (Table 8).

It was found that the difference between the students' personal hygiene habit scores and the semester success averages created a statistically significant difference ($p < 0.05$). It was observed that this significant difference was due to the fact that the personal hygiene habit score of those whose semester success average was above 70 was higher than those whose personal hygiene habit score was below 70 (Table 2). There was no statistically significant difference between the students whose personal hygiene habit scores were below the average, and those whose personal hygiene habit scores were above the average, and those who received a report from any disease (Table 3). All hygiene habits of the students and the status of getting a report from any disease were compared one by one, and it was determined that the difference between the students who took a bath twice or more a week and those who received a report from any disease was statistically significant (Table 4).

Limitations of the Study: The limitation of the study is that this study is conducted only with Turkish student and in a single city.

Acknowledgements: We thank all participants for their participation in this study.

Place of Work: The research was conducted in Talas Toki Martyr Levent Secondary School, Osman Kavuncu Secondary School and Ergenekon Secondary Schools located in three central districts of Kayseri province, namely Talas, Kocasinan and Melikgazi.

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