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*RESEARCH ARTICLE - MEDICAL TECHNIQUES*

# Knowledge and Attitudes of Students About Water Pipe Smoking at Technical Institute / Alsuwayra in Middle Technical University

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**Abstract**

Water pipe (WP) is also referred to as Narghile, Hubble-bubble, Ghoza, and Hookah, depending on the country. Water pipe tobacco smoking is a type of tobacco consumption that involves smoking flavored or unflavored tobacco via a single or multi-stemmed instrument. The objective of the study knowledge and attitudes about water pipe (shisha) smoking. A descriptive cross-sectional study design (mixed methods design) was carried out at the technical institute –Suwaira. Included (240) students. The sampling technique was a random sample, and data was collected using an interview with students, from December 2021 to March 2022. Results of the study show demographic characteristics of students' age groups (21-24) years (50.0%), type of smoking (21.2%) of smoking both (cigarettes and water pipes), the overall level of knowledge to study sample about waterpipe smoking was intermediate knowledge (67.1%). The conclusions of the study show a majority of participants were smoking (52.1%), and most of them were smoking both (Cigarettes, Water pipes). Knowledge of students about waterpipe smoking was more (Yes) responses are harmful to health, the overall level of knowledge about waterpipe smoking was intermediate and poor knowledge. The study recommends great interest to the Ministry of Health and the consideration of the adjustment of strategies to improve knowledge, change attitudes, and correct the misconceptions about the habit of WPS, especially among students in colleges and universities.



Publisher: Middle Technical University

**Keywords**: Knowledge; Attitudes; Students; Water Pipe; Institute; University.

## 1. Introduction

Water pipe (WP) is also referred to as Narghile, Hubble-bubble, Ghoza, and Hookah, depending on the country [1]. Water pipe smoking (WPS) is a widespread practice, particularly among adolescents and adults. The use of water pipes for inhaling tobacco is gaining traction across the globe, including in the Middle East [2].

To smoke tobacco through a water pipe, also known as a hookah, is a form of tobacco consumption that involves inhaling smoke from flavored or unflavored tobacco while using an instrument with one or more stems. The smoke is then drawn into the user's lungs after traveling through water or another liquid [3]. The amount of tobacco in a water pipe can range anywhere from ten to twenty grams. Additionally, the smoke from these cigarettes contains hundreds of potentially hazardous compounds, including carbon monoxide, charcoal, nicotine, arsenic, cobalt, and chromium. One hour of smoking a water pipe is equivalent to inhaling (100-200) times the smoke that would be inhaled by smoking a single cigarette. This is because one water pipe is roughly equivalent to 70 cigarettes. According to a survey that was cited by a French anti-smoking organization, smoking a water pipe releases the same amount of carbon monoxide as smoking between 15 and 52 cigarettes, and it generates the same amount of tar as smoking between 27 and 102 cigarettes [4].

The use of water pipes to smoke tobacco has seen a surge in popularity among younger smokers, notably among high school and university students of both sexes [5]. The use of water pipes for inhalation is gaining popularity all over the United States, particularly among younger people in urban areas, college students, and young professionals. Despite the rise in popularity of hookah bars and the growing acceptance of state and local regulations mandating smoke-free workplaces, most of these establishments remain unregulated. Some people who smoke hookah are under the impression that the activity is safer for their health than smoking [6].

The American Lung Association (ALA), the World Health Organization (WHO), and the American Cancer Society (ACS) have all stated that smoking out of a water pipe can be hazardous to one's health. As with smoking, it can raise the likelihood of developing cancer, cardiovascular disease, lung disease, and adverse effects on the developing fetus [7].

Smokers of water pipes are at risk for the same diseases as users of cigarettes, including coronary heart disease and a range of cancers, including cancers of the mouth, lungs, esophagus, and stomach. Water pipe smokers are also at risk for lung cancer. There is also a decline in both lung

| Nomenclature & Symbols | | | |
|---|---|---|---|
| ALA | American Lung Association | WHO | World Health Organization |
| ACS | American Cancer Society | WTS | Water Pipe Tobacco Smoking |
| SPSS | Statistical Package for the Social Sciences | WPS | Water Pipe Smoking |
| WP | Water Pipe | | |

function and fertility as a result of exposure. The transmission of infectious diseases such as mycobacterium TB, herpes, and viral hepatitis, along with a wide variety of other infections, is made more likely when people share water pipes [8]. Even among those who do not smoke tobacco, the use of water pipes to inhale psychoactive substances may be widespread due to a lack of awareness regarding the potential health risks associated with this practice [9]. WP smoking in young people is worrying because of the economic burden it can generate in the long term by reducing productivity and imposing health costs. Therefore, it is important to understand the correlates of WP use among youth. Unfortunately, WP smoking has increased its popularity among adolescents and youth around the world. According to Global Youth Tobacco Survey, in 34 of the 100 sites surveyed, the use of tobacco products other than cigarettes increased, which was largely attributed to rising WP use [10]. The prevalence of WP smoking is much higher in Eastern Mediterranean and European countries than in the other parts of the world, and also much higher among young people than adults. Studies conducted in Eastern Mediterranean countries reported a prevalence rate between 14.9% and 65.3% from 2002 to 2014 [11]. Worldwide, in 2007, around 100 million individuals smoked waterpipe daily. The popularity of waterpipe smoking has increased dramatically in several countries, especially among the youth population, and it has even replaced cigarette smoking as a popular form of tobacco consumption. The prevalence of waterpipe smoking among youth is excessively high in European and Middle-Eastern countries, and it is the highest among adults in the Middle-Eastern countries [12]. Water pipe tobacco smoking has spread from Arabian to Western cultures, perhaps due to increasing globalisation and immigration, and the majority of new users are from younger age groups – particularly university students. A systematic review investigating the prevalence of WTS analysed 129 studies and showed that university students recorded the highest prevalence estimates worldwide [13].

## 2. Material and Methods

### *2.1. Research design and sample*

A descriptive cross-sectional study design (mixed methods design) was carried out at the Technical Institute -Suwaira. Included (240) students were (166) male and (74) female student selected from the technical institute –Suwaira in Wasit, to study their knowledge and attitudes about water pipe (shisha) smoking. The sampling technique to select student were random (or probability) sampling→simple random sampling, the mainly common method of random sampling is simple random sampling (SRS). Students have the same chance of being included in the sample.

### *2.2. Data collection*

The data was collected by using an interview technique by the researcher with students over four months, from December 2021 to March 2022.

### *2.3. Research instrument*

The instrument includes four parts: Part (1): Demographic characteristics questions contain 6 items for measuring age, gender, marital status (married, unmarried), residence (urban and rural), department (nursing, computer systems, accounting, electricity, mechanics ability, mechanical and plant production), stage (first, second). Part (2): Smoking characteristics questions consist of (6) items, are you smoking (yes, no), type of smoking (cigarettes, water pipes, both), frequency of water pipe smoking (daily, once/week, 2-3 times a week, 1 time/ 2 weeks), place of water pipe smoking (home, cafe/restaurant, other), share water pipe with others (yes, no), and the time start water pipe smoking (alone, with friends, others). Part (3): Students' knowledge question consists of (21) items, answered yes, don't know, and no, distributed with (1,2, and 3) scoring scale. The students answered in questionnaire format by direct interview technique in the present study. Part (4): Students' attitudes question consists of (13) items, assessed by scores scales (agree, disagree) relative to (1, 2) respectively.

### *2.4. Data analysis*

The following data analysis procedures were utilized to evaluate and appraise the study's results using the statistical software (SPSS) ver. (24): To show students' knowledge and attitudes concerning water pipe smoking, distributions of frequency, percent, and mean of the score were determined. Knowledge scores varied from 1 to 3, with levels of poor knowledge (1–1.66), intermediate knowledge (1.67–2.33), and good knowledge (2.34–3). Students' replies to statements about their views were graded on a scale of 1–3. A score of ≥1.5 was considered positive, while a score of < 1.5 was considered negative.

### *2.5. Ethical approval from students*

Ethical approval was obtained from students at Technical Institute Al-Suwaira /Middle Technical University. Students have completed consent forms acknowledging their understanding that their students are voluntary and that the information would be treated in confidence and used exclusively for research purposes.

## 3. Results

### *3.1. Socio-demographic characteristics of students*

The socio-demographic data for the study sample was shown in Table 1. Students' age groups (21-24) years constituted the majority (50.0%). Regarding "Gender", a greater number of the study sample students were male, and they accounted (for 69.2%). A high percentage of students were unmarried (85.0%). Regarding "Residency" urban were the vast majority of the studied sample, and they accounted (for 77.9 %). The Accounting department had the largest representation of students (32.5%) while the Plant production department had the smallest (4.6 %). The second stage to study sample had the largest proportion (58.8%).

Table 1. Distribution of sample according to Demographic Characteristics

| Age | F | % |
|---|---|---|
| < 20 | 94 | 39.2 |
| 21-24 | 120 | 50.0 |
| 25 and more | 26 | 10.8 |
| Total | 240 | 100 |
| Marital status | F | % |
| Married | 36 | 15.0 |
| Unmarried | 204 | 85.0 |
| Total | 240 | 100 |
| Department | F | % |
| Nursing | 45 | 18.8 |
| Computer Systems | 38 | 15.8 |
| Accounting | 78 | 32.5 |
| Electricity | 35 | 14.6 |
| Mechanics ability | 19 | 7.9 |
| Mechanical | 14 | 5.8 |
| Plant production | 11 | 4.6 |
| Total | 240 | 100 |
| Gander | F | % |
| Male | 166 | 69.2 |
| Female | 74 | 30.8 |
| Total | 240 | 100 |
| Economic status | F | % |
| Urban | 187 | 77.9 |
| Rural | 53 | 22.1 |
| Total | 240 | 100 |
| Stage | F | % |
| First | 99 | 41.2 |
| Second | 141 | 58.8 |
| Total | 240 | 100 |

F = Frequency, % = Percentage

*3.2. Distribution of smoking characteristics*

Table 2 shows the high frequency of study sample smokers (52.1%), with the type of smoking the majority of students were (21.2%) smoking both (cigarettes and water pipes). The highest proportion of students' frequency of water pipe smoking was (27.1%) of daily smoking. Most of the students (32.1%) smoked at cafes/restaurants, and a greater number of the students (30.4%) share water pipes with others. The highest percentage of students relative to the time start water pipe smoking with friends was (33.8%).

Table 2. Distribution of the sample regarding smoking characteristics

| Are you smoking | F | % | Type of smoking | F | % |
|---|---|---|---|---|---|
| Yes | 125 | 52.1 | Cigarettes | 29 | 12.1 |
| No | 115 | 47.9 | Water pipes | 45 | 18.8 |
| Total | 240 | 100 | Both | 51 | 21.2 |
| Frequency of water pipe smoking | F | % | Place of water pipe smoking | F | % |
| Daily | 65 | 27.1 | Home | 26 | 10.8 |
| Once/ week | 27 | 11.3 | Cafe/restaurant | 77 | 32.1 |
| 2 - 3 times a week | 24 | 10.0 | Other | 22 | 9.2 |
| 1 time / 2 weeks | 9 | 3.7 | | | |
| The time start water pipe smoking | F | % | Share water pipe with others | F | % |
| Alone | 39 | 16.2 | Yes | 73 | 30.4 |
| With friends | 81 | 33.8 | No | 52 | 21.7 |
| Others | 5 | 2.1 | | | |

F = Frequency, % = Percentage

*3.3. Distribution of knowledge about waterpipe smoking*

Table 3 shows a high percentage of participants answered (Yes) about WPS being harmful to health (73.3 %), while a lower percentage about WPS sharing can cause communicable diseases (20.4 %). Regarding the (Don't know) response the vast majority (51.7%) of participants WPS can cause Diabetes, while the lower responses (7.5%) of participants WPS is harmful to health. According to (No) response, a high proportion (50.8%) of participants' water pipe smoking does not irritate the bronchi, and the lower frequency (10.4%) of participants for WPS can cause oral cancers, and WPS can cause hepatitis B or C.

Table 3. Distribution of the Knowledge of the sample about waterpipe smoking

| Knowledge | Yes | | Don't know | | No | |
|---|---|---|---|---|---|---|
| | F | % | F | % | F | % |
| WPS is harmful to the health | 176 | 73.3 | 18 | 7.5 | 46 | 19.2 |
| WPS is more dangerous than cigarette smoking | 139 | 57.9 | 38 | 15.8 | 63 | 26.3 |
| WPS contains less nicotine than cigarettes | 75 | 31.3 | 68 | 28.3 | 97 | 40.4 |
| WPS sharing can cause communicable disease | 49 | 20.4 | 85 | 35.4 | 106 | 44.2 |
| The bronchi are not irritated by water pipe smoking | 63 | 26.3 | 55 | 22.9 | 122 | 50.8 |
| Water in WP filters toxin substances | 93 | 38.8 | 106 | 44.2 | 41 | 17.1 |
| WPS leads to cardiovascular disease | 141 | 58.8 | 51 | 21.3 | 48 | 20.0 |
| WPS can not cause lung cancer | 70 | 29.2 | 61 | 25.4 | 109 | 45.4 |
| WPS can cause adverse effects during pregnancy | 133 | 55.4 | 50 | 20.8 | 57 | 23.8 |
| WPS can cause kidney diseases | 117 | 48.8 | 91 | 37.9 | 32 | 13.3 |
| WPS leads to a dental problem | 125 | 52.1 | 42 | 17.5 | 73 | 30.4 |
| WPS can cause oral cancers | 115 | 47.9 | 100 | 41.7 | 25 | 10.4 |
| WPS can cause hepatitis B or C | 93 | 38.8 | 122 | 50.8 | 25 | 10.4 |
| WPS can cause Asthma | 131 | 54.6 | 49 | 20.4 | 60 | 25.0 |
| WPS can cause joint diseases | 73 | 30.4 | 123 | 51.3 | 44 | 18.3 |
| WPS can cause Diabetes | 69 | 28.8 | 124 | 51.7 | 47 | 19.6 |
| WPS can cause Psychiatric problems | 148 | 61.7 | 50 | 20.8 | 42 | 17.5 |
| WPS can cause Hypertension | 136 | 56.7 | 49 | 20.4 | 55 | 22.9 |
| WPS can cause Peptic ulcer | 91 | 37.9 | 112 | 46.7 | 37 | 15.4 |
| WPS can cause pharyngeal cancer | 102 | 42.5 | 86 | 35.8 | 52 | 21.7 |
| WPS can cause sleeping disorders | 123 | 51.3 | 54 | 22.5 | 63 | 26.3 |

F = Frequency, % = Percentage

*3.4. Distribution of attitudes about waterpipe smoking*

Table 4 shows a high proportion of (Agree) about of WPS helps the feeling of relaxation (63.7%), while a lower frequency of WPS is a sign of manhood (22.5%). Regarding (Disagree) response most (77.5%) of students respondents were WPS is a sign of manhood, while a lower percentage (36.3%) of respondents were WPS helps feeling of relaxation.

Table 4. Distribution of the attitudes of the sample about waterpipe smoking

| Attitudes | Agree | | Disagree | |
|---|---|---|---|---|
| | F | % | F | % |
| WPS is more socially accepted than cigarette smoking | 119 | 49.6 | 121 | 50.4 |
| WPS is an excellent opportunity to make new acquaintances | 131 | 54.6 | 109 | 45.4 |
| My family allows WPS at home but not cigarette smoking | 113 | 47.1 | 127 | 52.9 |
| WPS is a sign of manhood | 54 | 22.5 | 186 | 77.5 |
| WPS relieves stress and tension | 136 | 56.7 | 104 | 43.3 |
| WPS helps to feel relaxation | 153 | 63.7 | 87 | 36.3 |
| WPS It is cheaper than cigarette | 78 | 32.5 | 162 | 67.5 |
| Females may smoke WP but not cigarette-smoking | 110 | 45.8 | 130 | 54.2 |
| WPS helps people stay thin and cool | 133 | 55.4 | 107 | 44.6 |
| WPS denotes a high social position | 82 | 34.2 | 158 | 65.8 |
| WPS does not cause addictive | 79 | 32.9 | 161 | 67.1 |
| WPS can quite easily | 144 | 60.0 | 96 | 40.0 |
| In comparison to smokes, my folks would not mind if I smoked a water pipe | 99 | 41.3 | 141 | 58.8 |

F = Frequency, % = Percentage

*3.5. Level of knowledge and attitudes about waterpipe smoking*

Table 5 indicates the overall level of knowledge and attitudes to the study sample about waterpipe smoking was intermediate knowledge (67.1%) and negative attitudes (57.1%).

Table 5. Level of knowledge and attitudes of the sample about waterpipe smoking

| Knowledge | M.S | F. | % |
|---|---|---|---|
| Poor | 1 – 1.66 | 64 | 26.6 |
| Intermediate | 1.67 – 2.33 | 161 | 67.1 |
| Good | 2.34 – 3 | 15 | 6.3 |
| Total | 1 – 3 | 240 | 100% |
| Attitudes | | | |
| Positive | ≥ 1.5 | 103 | 42.9 |
| Negative | < 1.5 | 137 | 57.1 |
| Total | 1 – 3 | 240 | 100% |

M.S = mean of score, F = Frequency, % = Percentage

## 4. Discussion

Students, who make up the educated sector of society and serve as role models for other young people, have shown an alarming increase in their use of hookahs in recent years. In general, the physical and mental well-being of students, in addition to their levels of production, is of the utmost importance because nations will need resources consisting of healthy and contented individuals in the future. Many different material and spiritual resources are utilized to keep young people in good health and to educate them. In this context, it is vital to identify, steer clear of, or get rid of aspects that hurt the physical and psychological health of pupils as well as their overall performance [14].

The results in the current study showed a high percentage of students (52.1 %) of smokers, most of them were water pipe smoking (18.8%). These findings are consistent with a previous study done by Jawaid et al; in Pakistan (2008) They discovered that the most prevalent demographic of students was WPS (53.6%) [15].

Also, another study which is well correlated with our results done by Abughosh et al, in the United States (2011) found that The majority of students, 51.77 percent, were water pipe smokers at the time of the survey [7]. According to the frequency of water pipe smoking the maximum number of participants was (27.1%) daily smoking, these results were not similar to that of Jawad et al, in the United Kingdom (2016) who showed that a significantly lower percentage of students (1.0%) reported daily use of water pipes about their frequency of smoking [16]. This disparity might be attributable to the widespread usage of WPS in our country as well as the varying levels of education found in different nations.

Relative to the place of water pipe smoking was the highest percentage of participants (32.1%) smoking at cafes/restaurants, This study is in agreement with the results of Abu-Rmeileh et al. in Eastern Mediterranean Region countries (2018), who found that More than seventy percent of students in Oman, the United Arab Emirates, and Egypt smoke in public places like restaurants and cafes [4].

The current study indicates that a large percentage of students share WP with others and the time start water pipe smoking with friends was (30.4%) and (33.8%) respectively. A study presented supportive evidence to this result done in Pakistan (2012) by Jaffri et al, showed that the larger percentage of students who shared their water pipes with others was 43.6%, and the percentage of students who started smoking water pipes with friends was 48.4% [17].

Regarding knowledge of students about waterpipe smoking, (73.3%) of participants knew that waterpipe smoking is harmful to health. A quite similar finding has been reported by Rahman et al., (2014) among university students in (the U.S., Florida) who found that the majority of respondents (74.6%) thought that smoking from a water pipe is detrimental to one's health [18]. Only (20.4%) of participants knew that WPS sharing can cause communicable diseases. The results of the study were incompatible with the study of Jaffri et al. in Pakistan (2012) where they found that 50.4% of individuals held the belief that sharing WPS could lead to the spread of contagious diseases [4]. This mismatch might be explained by the fact that people in different countries have different levels of educational achievement.

According to the results of our study, 65.8% of individuals disagree that WPS is an indication of high social standing. According to studies conducted by Aula and Aziz Iraq, Erbil (2018) and Alqahtani et al, Georgia (2017), The vast majority of those who participated in the research did not agree that WPS is an indication of high social standing (73.3% and 86.8%, respectively) [6], [19].

The overall level of knowledge of the study sample about waterpipe smoking was Intermediate, poor, and good knowledge (67.1%), (26.6%) and (6.3%) respectively. This study result coincides with the results of El Sherbiny et al, In Egypt (2010), as showed (3.9%) of participants had a poor level of knowledge, while (94.4%) had a decent level, and (1.7%) had an excellent level [20]. Also, another study which is well not correlated with our results done by Jaffri et al. in Pakistan (2012) found that sixty seven point seven percent of the participants had sufficient awareness regarding smoking from water pipes [18]. This gap could be explained by a lack of understanding and knowledge about the significance of smoking from a water pipe, in addition to a disparity in the educational levels that exist between countries.

The overall level of attitudes to the study sample about waterpipe smoking was negative (57.1 %). The present study is consistent with the results of Aula and Aziz Iraq, Erbil (2018) showed the level of attitudes participants were negative (51 %) about waterpipe smoking [6]. Other studies disagree with our results done by Sidani et al. in the United States, Florida, (2013) and Sabahy et al. in Iran (2011) they found Positive sentiments prevailed among the majority of the student body [21, 22]. Examples of this could be found in the different educational standards that exist in various countries.

## 5. Conclusions and Recommendations

The majority of participants were smoking (52.1%), most of them were smoking both (Cigarettes, and Water pipes), a large number of students were smoking daily at Cafe/restaurants, most of the participants were sharing water pipe smoking with others, and the time start water pipe smoking with friends.

Knowledge of students about water pipe (shisha) smoking were more (Yes) responses to WPS is harmful to health, WPS can cause Psychiatric problems, and WPS leads to cardiovascular disease. The majority of attitudes of students about water pipe (shisha) smoking were agreed responses WPS helps the feeling of relaxation, and WPS can quit easily. The overall level of knowledge of students about water pipe (shisha) smoking was intermediate and poor knowledge, and the overall level of attitudes of students about water pipe (shisha) smoking was negative. The research suggests that these findings should be of significant interest to the Ministry of Health, as well as the consideration of adjusting strategies to improve knowledge, change attitudes, and correct misconceptions regarding the habit of WPS, particularly about students in colleges and universities. Place more of an emphasis on health education programs by including WPS-related regular lectures, seminars, and classes in the curriculum of colleges and universities, as well as by making these activities a required component of the orientation program for new students. Students' public knowledge of the harmful health impacts of smoking from a water pipe should be emphasized through initiatives at colleges and universities, and there is a need to change the attitudes of students about how smoking from a water pipe helps one feel relaxed, how smoking from a water pipe relieves stress and tension, how smoking from a water pipe keeps people slim and cool, and how smoking from a water pipe is an excellent way to meet new people, particularly during instructional sessions.

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