Author’s response to reviews

Title: Waterpipe and cigarette tobacco smoking among Palestinian university students: a crosssectional study

Authors:

Marina Tucktuck (mtucktuck1991@gmail.com)
Rula Ghandour (rghandour@birzeit.edu)
Niveen Abu-Rmeileh (nrmeileh@birzeit.edu)

Version: 1 Date: 15 Apr 2017

Author’s response to reviews:

Dear Dr. Rodriguez,

BMC Public Health

We would like to thank you and Dr. Roman, Dr. Veeranki and Dr. Keith, for your valuable comments. We addressed each of your raised comments and questions. We also modified the text according to your comments. The manuscript has become clearer for an external reader. We would like to share with you that this paper is part of a larger study that will result in another two papers. As such, for certain comments/questions, we only responded to your comments without making any modifications to the text.

Again, we would like to thank you for giving us the opportunity to modify the manuscript and enhance its suitability for publication in your respected Journal.

We look forward to hearing from you. Please let us know if further modifications are required.

Below, please find the responses to the raised comments and questions.
Editor Comments:

This is a well-conducted epidemiologic study of waterpipe tobacco smoking in a sample of university students in Palestine that provides important estimates of youth smoking. The abstract says 30% were tobacco smokers (waterpipe and/or cigarette)

Thank you for your feedback.

1. I would have liked to learn more about the youth perception; why do they rather do hookah than cigarettes; is the perception that hookah is safer?

Thank you for raising this point. Perception of the harmful effects or practice of smoking is a very important aspect in the waterpipe tobacco smoking behavior among youth. The perception of youth towards the harmful effects of waterpipe tobacco smoking in comparison to cigarette smoking has been documented in other studies (please see the discussion section, page 18, lines 385-386 of the attached revised manuscript). From my Master of Public Health thesis, I asked about the harm perception for WTS and cigarette smoking. The results on youth perception, beliefs, attitudes and knowledge (as well as reasons for smoking) will be presented in another paper. Overall, the results showed that 97.7% of the study sample believed that WTS is harmful to health and more than 2/3 of the study sample believed that WTS is more harmful than cigarette smoking.

For this paper, I could reiterate that the results from the qualitative focus group discussion showed that youth enjoy the social nature of WTS in comparison to the individualistic nature of cigarette smoking, which makes WTS appeal more to them.

A copy of my Master of Public Health thesis at Birzeit University can be found in this link, which has more details on the content of the study:


2. Please state that WTS is hookah use since this is known in other parts of the world as 'hookah'

Yes, this is an important point to ensure that the terminology used is understood in different parts of the world. Text was modified to reflect this change in the abstract section, page 2, lines 20-21 and background section, page 5, line 84 of the attached revised manuscript (changes are tracked).
3. 2015 Youth Survey revealed that 23.5% of youth smoked tobacco (men, 40.9% vs. women, 10.5%). does this prevalence match what was found in this study?

The 2015 Youth Survey, conducted by the Palestinian Central Bureau of Statistics, addressed the prevalence of tobacco smoking in general and not specifically for waterpipe tobaccos smoking. In addition, the youth survey targeted youth, as defined by the Palestinian Central Bureau of Statistics, as those between the ages of 15-29 years old, and not specifically university students (but rather all youth in that age group). Based on the different age group and target population, we decided not to compare the reported prevalence in the Youth Survey with our prevalence, so as not to create any confusion.

In our study, the prevalence of current (daily or less than daily) tobacco smoking (could be waterpipe, cigarette or both) was 30.0%, which is higher than the reported prevalence in the youth survey (23.5%). Our reported current tobacco smoking prevalence can be found in the results section, page 12, lines 245-246 of the attached revised manuscript.

4. WTS has been around for centuries, how is it emerging as a tobacco form? can this be discussed

This is a very important point. Many studies have addressed the historical context of the emergence of WTS. While it has been practiced for centuries, in the 1980s, WTS habit became confined to older men, especially in the Middle Eastern region. In the last two decades, the practice of WTS has become a habit of young adults and youth. Thus, the emergence of WTS now concerns the new group that is taking on the WTS habit, which includes adolescents and youth.

More details on the historic context of WTS can be found in my Master of Public Health thesis through this link:


Text has been modified to elaborate more on the emergence of WTS among youth and young adults in the background section, pages 5-6, lines 83-107 of the attached revised manuscript (changes are tracked).

5. This study includes a sample of university students in the West Bank and Gaza Strip. How representative is this sample? can this be discussed
Thank you for your comment. Since this was the first study in Palestine to address the waterpipe tobacco smoking habit among university students, our aim was to explore this behavior and have baseline prevalence for the participating universities. It was not our intention to have a representative sample where the results would be generalized outside the participating universities, but rather our intention was to explore the behavior to support future studies in this area. Please note that the reported prevalence in this paper is only for the participating universities.

The text was modified in the discussion section, page 22, lines 472-477 of the attached revised manuscript (changes are tracked).

6. I don't understand these SS calculations; did they based the SS on a 50% prevalence of WTS?

We used the sample size equation for the infinite population since our student population at the participating universities was more than 50,000 students. Since this study was the first in Palestine to explore the prevalence of waterpipe tobacco smoking among university students in Palestine (including the West Bank and Gaza Strip), there was no previously reported prevalence to use in the SS calculation. This is why we used a predicted prevalence of 0.5 for the ‘p’ variable in the SS equation.

Text was modified to explain the sample size calculation in the methods section, page 8, lines 157-160 of the attached revised manuscript (changes are tracked).

7. An average 63 minutes of WTS per session sounds like alot. can this be discussed?

Many studies have documented that the average waterpipe tobacco smoking session is about an hour. Some examples can be found in the discussion section, page 19, line 395 of the attached revised manuscript. This feature of WTS has been compared to cigarette smoking, where the average time to smoke one cigarette is about 5 minutes due to its individualistic nature, whereas, it takes an average of one hour for one waterpipe tobacco smoking session due to its social nature.

Text has been modified to discuss this point further in the discussion section, page 18, lines 395-405 of the attached revised manuscript (changes are tracked).
8. why did the authors hypothesize that the mother's educational status would impact smoking status; what is the societal significance of a mother's educational status. why is the opposite sex parent the focus of the analysis on pg 17, ln 305-308?

Previous studies have shown that parental education impacts the smoking status of their children, where higher parental education increases the odds of waterpipe tobacco smoking. Parental education is thought to be linked with high socio-economic status, social class, a modern way of living and prestigious. This is why we decided to study the effect of parental education on the smoking status of our study sample. Here are some examples:

Hookah Use Among US High School Seniors

http://pediatrics.aappublications.org/content/pediatrics/134/2/227.full.pdf

Water pipe (shisha) smoking among male students of medical colleges in the eastern region of Saudi Arabia


Tobacco use by university students, Lebanon, 2001


In our study, the bivariate analysis results revealed that fathers’ highest educational attainment was statistically significant with waterpipe tobacco smoking status, for men in the sample only (that is, a higher educational status of the father was found to be associated with being a waterpipe tobacco smoker). When parental education was added to the regression model, it was found to increase the odds of waterpipe tobacco smoking for the women in the sample only. This was an interesting finding, one which requires further future research.

9. page 16, line 273-276, none of these analyses are adjusted

Thank you for your comment. All the analyses presented in the tables are adjusted for gender and age. Text was modified in the abstract section, page 2, lines 37-38 and throughout the results section, pages 14-15, lines 281-321, where the odds ratio was clarified as the adjusted odds ratio (AOR), and these modifications can be found in the attached revised manuscript (changes are tracked).
10. how is the analysis presented on page 16, line 276-279, different than pg13, ln259-261. I guess one analysis is for men only?

Yes, that is correct. We had three regression models. One model analyzed the total sample. Given the statistically significant variation in the smoking behavior between men and women, we had two more models, one for the men in the sample only and another for the women in the sample only.

Text was modified to explain more about the logistic regression model used. The modified text can be found in the methods section, pages 10-11, lines 211-227 of the attached revised manuscript (changes are tracked). Also, text was modified in the results section, pages 14 & 15 & 16, lines 284 & 301 & 324 of the attached revised manuscript (changes are tracked) to highlight the use of the three regression models.

11. all of the results on pg 17, ln 295-305, could be in tables and they can just state in the Results where the women differed from the men

Thank you for your comment. We included a table with the binary logistic regression for current waterpipe and cigarette tobacco smoking statuses by participants’ characteristic for men in the sample only (n=929) and women in the sample only (n=962) (Table 4). This table can be added as a supplementary document. Please also note that the presentation of the results was based on our objective to compare WTS and cigarette smoking, and not between men and women. We computed separate regression models for the men in the sample only and women in the sample only due to statistically significant variation in WTS and in cigarette smoking. Thus, the text that explains the results of the regression compare WTS and cigarette smoking for: the total sample, men in the sample only, and women in the sample only.

12. are there any data for WTS in the US, Europe? can this be discussed?

Thank you for your comment. There have been many studies on WTS in the U.S. and Europe as it is a new method of smoking in that region. In Palestine, WTS among university students is understudied and this is why we wanted to focus on it. Text was modified to highlight the prevalence of WTS in different parts of the world and among different age groups in the background section, page 5, lines 94-112 of the attached revised manuscript (changes are tracked).
13. I'd like to know how many dual users were there; in how many was WTS a gateway to cigarettes?

In the results section, page 12, lines 245-246 of the attached revised manuscript, the text reports the overall prevalence of tobacco smoking (30.0%) and then provides a breakdown of smoking by form of tobacco (cigarette and WTS). The prevalence of dual WTS and cigarette smoking, that is, those who smoke both waterpipe and cigarettes, was 12.4%.

Text was modified to clarify the prevalence of dual waterpipe and cigarette smoking in the results section, page 12, lines 245-246 of the attached revised manuscript (changes are tracked).

As for the second point on WTS as a gateway for cigarette smoking, since this was a cross-sectional study, we were not able to examine the role of WTS as a gateway for cigarette smoking. This is a very interesting point of discussion in the current literature. We hope to be able to address it in future studies.

14. the reported study does not link war tensions with smoking behavior; this was not asked in the questionnaires to the participants; yet the authors bring up that a link does exists in pg 18, ln 380-382 without any background or rationale. are there other parts of the world where war tensions have been linked to cigarette smoking or WTS

Thank you for bringing up this point. In our study, we did not ask about exposure to violence as this was not one of objectives. Also, the exposure to violence is/has been different in the West Bank versus the Gaza Strip. In addition, we did not want questions about chronic conflict and/or exposure to violence to affect participation of students.

Below are some examples of studies that linked exposure to conflict and violence to an increased risk of tobacco smoking consumption. Based on a previous study by the Institute of Community and Public Health at Birzeit University (shown below), there was a discussion on the link between war tensions or chronic conflict (as is the case in the Palestinian context) between cigarette smoking and exposure to violence among youth. In another study, also conducted by a member of the Institute of Community and Public Health at Birzeit University (shown below), found a link between exposure to chronic conflict and violence on the smoking behavior of youth. Given the results of these studies, we used the link between exposure to violence and tobacco consumption as a potential explanation for the variation in the smoking behavior within the Gaza Strip and between the West Bank and Gaza Strip. However, there are not any studies that documented the effect of the recent (2014) war on the Gaza Strip on tobacco smoking habits. For this reason, we were not able to comment further on the geographic variation in the tobacco smoking prevalence in the different regions of Palestine.
Text has been modified in the discussion section, pages 20-21, lines 431-447 of the attached revised manuscript (changes are tracked).

Smoking among adolescents and teenagers living under conflict: cross-sectional surveys in three settings


Association between trauma exposure and smoking in a population-based sample of young adults


Tobacco use and nicotine dependence among conflict-affected men in the Republic of Georgia


Increased use of cigarettes, alcohol, and marijuana among Manhattan, New York, residents after the September 11th terrorist attacks


Smoking and associated factors in the occupied Palestinian territory


15. would like to see better comparison between Western and Middle Eastern society in the discussion. is WTS more of a status symbol in Middle Eastern society? can this be discussed

Thank you for your comment. Text was modified to address this point in the discussion section, pages 17-18, lines 356-378 in the attached revised manuscript (changes are tracked).

16. page 21, ln 392-403, this paragraph does not make sense; would scrap it. There is no mention of background showing of parental education (or SES) as influence on WTS

Thank you for your comment. The paragraph on the link between SES and tobacco smoking has been omitted. Please see modification in the discussion section, page 21, lines 439-447 in the attached revised manuscript (changes are tracked).
17. Major editing for grammar and English language is needed

Thank you for pointing this out. An English speaker has read the manuscript. Text has been modified to address this point in the attached revised manuscript (changes are tracked).

Reviewer reports:

Nicolette Vanessa Roman, PhD (Reviewer 1): This is a very good topic and very interesting. I like that you have incorporated many factors in your exploration and description of the topic. The findings are quite comparable to international studies. I would suggest a good edit though. Well done!

Thank you for your comment. An English speaker has read the manuscript. Text has been modified to address this point in the attached revised manuscript (changes are tracked).

Phani Veeranki (Reviewer 2):

In this study, the authors conducted a cross-sectional study to assess Waterpipe and cigarette tobacco smoking among Palestine University Students. I commend the authors for their work, however I have several reservations about the study. I have included my comments in detail below:

Thank you for your feedback.

1. The authors do not present a substantive argument about why it is important to study WTS smoking in Palestine university students. Are the rates really higher? I suggest the authors to read the paper by Khalid and colleagues that estimated the burden of WTS, cigarette and dual smoking in Arab nations; and draw rationale about their study.

Thank you for your comment. We are aware of the other studies that were mentioned in your comment above. We recognize that many studies are interested in assessing the burden and impact of WTS among different populations, especially among youth. Most of the studies in Palestine did not focus on university students, who appear to be at a high risk for WTS. Our
study hoped to explore the burden of WTS among this age group, especially that rates among adolescents (as reported by GYTS) were high.

Text was modified and re-organized to clarify our rationale in the background section, pages 5-7, lines 82-143 in the attached revised manuscript (changes are tracked).

2. The main concern is use of GATS for university students. What is age range of these students? Are they >18 years old?

According to the WHO Tobacco Free Initiative surveys, GATS was developed to meet the need for maintaining consistency and comparability in the monitoring and surveillance of tobacco use. GATS is designed to be administered for all men and women, 15 years of age or older. The GATS has core and standardized questions for measuring the prevalence of tobacco smoking and consumption that can be used by any country to monitor tobacco smoking prevalence and patterns. Below is the link to GATS core questions and an overview of the GATS design:

http://www.who.int/tobacco/publications/surveillance/en_tfi_tqs.pdf?ua=1

http://www.who.int/tobacco/surveillance/8_GATS_SampleDesignManual_v2_FINAL_18Jan2011.pdf?ua=1

In our study, the minimum age of our participants was 17 years old with a mean age of 20 years old ± 2 SD. We also had an inclusion criterion that included an age limit of 17 years old and above. Thus, the use of the GATS matched the age of our target group. In addition, we wanted to use the GATS because it is a standardized tool that could be used in future studies and thus allow for prevalence comparison among the same target group. Also, please note that for the Global Youth Tobacco Survey (GYTS), it is developed for adolescents 13-15 years of age. The GYTS has very similar questions to the ones found in GATS. Furthermore, we contacted the surveillance officer in the Tobacco Free Initiative unit at the regional office of the World Health Organization for the Eastern Mediterranean who provided us with the Qatar GATS tool in Arabic with the waterpipe module included. The Qatar office used the Arabic-translated GATS as their pilot testing in 2012.

Our choice to use the GATS was thus based on the above factors and we considered it to be a good choice for measuring tobacco prevalence among Palestinian university students.
3. The questions on WTS use from GATS are limited. No question about frequency, waterpipe heads etc. were present in the GATS questionnaire. I suggest the authors read Alzyoud et al. paper published in GJHS for Arabic version of waterpipe tobacco questionnaire. Primack et al. has also come up with a similar questionnaire.

As part of the WHO office to strengthen tobacco surveillance, they developed the GATS. The GATS questionnaire has core questions they suggest that researchers use in their studies for surveillance and monitoring purposes of tobacco smoking prevalence and patterns. These core questions measure tobacco smoking prevalence and include: current tobacco smoking status, past daily smoking status, and past smoking status. These questions address the frequency of smoking with the answer options of: daily, less than daily, not at all. The GATS survey guide also suggested the use of other questions, such as the number of tobacco products smoked (number of cigarettes for cigarette smokers and number of waterpipe sessions for waterpipe smokers) per day and per week. Please note that we did not analyze the data on the number of heads and sessions of waterpipe tobacco smoking in the current paper; this will be addressed in a future paper. Here is the link to the GATS core questions, which have questions on frequency and number of waterpipe sessions smoked:

http://www.who.int/tobacco/publications/surveillance/en_tfi_tqs.pdf?ua=1

We also contacted the surveillance officer in the Tobacco Free Initiative unit at the regional office of the World Health Organization for the Eastern Mediterranean who provided us with the Qatar GATS tool in Arabic with the optional waterpipe module included. The English and Arabic version of the Qatar GATS pilot testing can be accessed through the surveillance officer in the Tobacco Free Initiative unit at the regional office of the World Health Organization for the Eastern Mediterranean. It can also be made available upon request.

Thank you for suggesting the above papers. Many researchers have developed different surveys to study waterpipe tobacco smoking prevalence and patterns, many of which have very similar questions to those available in the GATS. We are aware of the papers you suggested and the focus of these papers was different than our objectives (for example, the Alzyoud et a. paper focused on nicotine dependence in waterpipe tobacco smoking). We are also aware of the different surveys available to study waterpipe tobacco smoking. Also, please note that for the
Global Youth Tobacco Survey (GYTS), it is developed for adolescents 13-15 years of age. The GYTS has very similar questions to the ones found in GATS. However, we decided to use the GATS as it is a standardized tool that could be used in the future to monitor smoking in Palestine (the WHO urges countries to use the GATS in their surveillance and monitoring of tobacco smoking). The Arabic version of the GATS was also piloted in Qatar, an Arab country, which is an added advantage to our context. The GATS is also a comprehensive tool and meets our objective of exploring the waterpipe tobacco smoking prevalence and patterns among our study sample. The main sections of our tool can be found in the methods section, page 9, lines 174-177 of the attached revised manuscript.

Text was modified to explain the use of GATS in the methods section, page 9, lines 169-173, of the attached revised manuscript (changes are tracked).

4. The sample size calculations ignored the sampling strategy and the analytical strategy. Please check.

In our study, our approach/strategy to data collection was the use of a web-based design. Web-based surveys depend on individual participation, rather than recruiting participants in the study. We shared the link of the survey with the students through the university-student electronic portal page. Since all the students had equal access to the survey link through their portals, we ran the analysis with the assumption that each student has an equal opportunity to participate in the study regardless of individual factors, such as, gender, age and faculty of study for example. Thus, the equal access to the survey link follows that each student has an equal opportunity to participate in the study, and this ensures random participation of students.

Text was modified to explain the sample size calculation in the methods section, page 8, lines 157-160 of the attached revised manuscript (changes are tracked).

Further information on sampling and sample size can be found through this link, which is a copy of my Master of Public Health thesis at Birzeit University:

5. Another major concern is "dual smokers". The authors have conveniently avoided defining dual tobacco smokers i.e., those who smoke both waterpipe and cigarettes.

Our study was aimed at estimating the prevalence of current waterpipe tobacco smoking, irrespective of other tobacco smoking products, among Palestinian university students. We were interested in comparing the prevalence of current waterpipe tobacco smoking and current cigarette smoking (but not exclusive waterpipe tobacco smoking). This is because the prevalence of waterpipe tobacco smoking among university students in both the West Bank and Gaza Strip has not been studied before.

In the current study, we reported the prevalence of dual smoking, which we defined in the results section, as those who smoke waterpipe and cigarettes. In the results section, page 12, lines 245-246 of the attached manuscript, the text reports the overall prevalence of tobacco smoking and then provides a breakdown of smoking by forms of tobacco smoked. The prevalence of dual smoking (those who smoke both waterpipe and cigarette) was 12.4%. Text was modified to elaborate more on the definition of dual smoking in the results section, page 12, lines 245-246 of the attached revised manuscript (changes are tracked).

6. Analysis plan: mean and SD; and median and interquartile range. You should not report SD for medians.

Thank you for pointing out this point.

Text has been modified accordingly in the methods section, page 10, line 210 and in the results section, pages 13, lines 260-261 of the attached revised manuscript (changes are tracked).

7. Use of logistic regression models for estimating prevalence and prevalence ratios is not advisable without mentioning limitations about survival bias.
In our study, we reported/estimated the prevalence of our primary and secondary outcomes variables (waterpipe tobacco smoking and cigarette smoking) as a proportion of smokers from the total study sample. Following, chi-square analysis was used to test for statistical significance between our outcomes variables (current waterpipe tobacco smoking and current cigarette smoking) and selected covariates. Following, the stepwise logistic regression method was used for the logistic regression analysis. The logistic regression analyses/models were chosen to estimate the adjusted odds ratio for selected covariates/factors with our outcomes variables (or put differently, the regression analysis was computed to determine the significant associated factors and their odds ratios with our outcomes variables). The regression analysis was not intended to estimate prevalence or prevalence ratios.

The modified text that further explains the analysis can be found in the methods section, pages 10-11, lines 211-224 of the attached revised manuscript (changes are tracked).

Rachel Keith (Reviewer 3): The authors of this paper aimed to describe the use of water tobacco smoking in the specifically among Palestinian university students. The rational was that this had not been well characterized in the past and to help curb tobacco related disease understanding use patterns was important

Reviewers comments:

1. Please add what happened with the participants who did enroll at the university site that did not meet the SS targets.

The online survey link was shared with all students at the participating universities. The survey had some screening/inclusion criteria questions after the online consent on whether the student was completing his/her bachelor degree, a full-time student and ≥17 years of age. Those students who did not meet the inclusion criteria of the study were re-directed to another page. On that page, the students were thanked for their participation and it was explained to them that they do not meet the inclusion criteria of the study. The students’ responses for the screening questions (on sociodemographic background and university-related questions) were recorded; however, these students (and their responses) were not included in the study or SS target.
2. Please identify how the model for logistical regression was determined within the methods.

Thank you for your comment. Text was modified to explain the logistic regression model used. The modified text can be found in the methods section, pages 10-11, lines 211-224 of the attached revised manuscript (changes are tracked).

To reiterate the computed analysis in the study, chi-square analysis was first used to test for statistical significance between our outcomes variables (current waterpipe tobacco smoking and current cigarette smoking) and selected covariates. Following, the stepwise logistic regression method was used for the logistic regression analysis. Selected covariates were included in the regression model (including those that were not found to be statistically significant in the chi-square analysis). Please note that the model was adjusted for gender and age. The regression analysis was chosen to estimate the adjusted odds ratio for selected covariates/factors with our outcomes variables. The selected variables can be found in the methods section, page 11, lines 220-224 of the attached revised manuscript.

3. Why were paper forms not used, it is mentioned they were piloted but all the data was collected via the web. This may present some bias based on access to the survey.

We decided to use a web-based survey to collect data on smoking behavior for a number of reasons.

First, previous studies on tobacco smoking among university-aged students have utilized this method of data collection in their studies. Adolescents and youth are increasingly using the internet for their day to day activities, thus participating in an online survey is common for them. Research has shown that the use of a web-based survey is less time-consuming, less labor-intensive, comparable to the use of paper-based surveys, requires low cost and is easily accessible by participants who otherwise would not have the time to complete a paper-based questionnaire. Some examples are listed below:

Prevalence and Correlates of Waterpipe Tobacco Smoking by College Students in North Carolina (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3089695/)


Waterpipe Smoking Among U.S. University Students (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3524056/#bib8)
Second, we completed the pilot study using two approaches. We compared the results of the web-based survey and the paper-based survey, each separately, with selected student characteristics of the pilot university. Comparison between the web-based survey and selected university student characteristics revealed that participation in the web-based survey gave a reasonable representation of the study population of our pilot university students on the basis of gender distribution, faculty of study, year at university and geographic area of residence. Our pilot study also revealed a high completion rate (low drop-out rate) for the web-based survey. The results of the web-based and traditional paper-based surveys of the pilot study were compared to evaluate the web-based survey method (in terms of gaining insight on what it measures) and assess its comparability with the paper-based survey. Results revealed no bias in accessing either survey method.

Third, the use of a web-based survey allowed easy access for us as researchers to conduct the study among university students in the Gaza Strip. Given that physically accessing Gaza Strip is restricted, using the web-based survey allowed us to include Gaza Strip students in the study as all students at the participating universities had access to the online survey link. This was important in exploring the smoking behavior in the West Bank and Gaza Strip regions of Palestine. From our study, Gaza Strip participants had reached the target SS within a week of posting the online survey link.

Lastly, given that all the students who study at the participating universities have electronic student-university online portal (where the link to the survey was placed), all students in the participating universities had full access to the survey link. If bias were to be present in the study, it would only be bias in willingness to participate in the study and not bias in access to the survey. This type of bias is similar to what one might encounter with paper-based survey, that is, willingness to participate in a survey.

These factors supported our rationale to use a web-based survey, which, to the best of our knowledge, has not been employed in Palestine among university students.