Narghile Smoking among Jordanian Educated Working Women: Attitudes and Beliefs

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Authors’ contributions

This work was carried out in collaboration between all authors. Authors NSD, OAA and FMS designed the study and wrote the protocol. Authors SSP and NSD wrote the first draft of the manuscript. Authors OAA and MA performed the statistical analysis. Authors KBA and NOK managed literature search and distributed the questionnaires. All authors read and approved the final manuscript.

ABSTRACT

Aims: We estimated the number of users of tobacco, particularly narghile (water pipe) among a sample of women working at a higher education institute in Jordan. We also investigated the attitudes of narghile smokers to their habit, together with their willingness to stop NS; and finally their awareness to oral health and their perceptions about the harmful effects of NS.

Study Design: The study was a cross-sectional survey whereby the sample was conveniently selected from all the faculties, institutes and centres of the University.

Place and Duration of Study: University of Jordan, Amman, Jordan during July 2011.

Methodology: Data were collected by allowing the participants to complete a pre-prepared questionnaire privately. Statistical analysis was performed using the SPSS program.

Results: Among the (96) participants, 24 ladies (25%) were smokers mostly (79.2%) of narghile. Demographic and social data of age, marital status, education level and number of children did not seem to affect smoking status. Friends and relatives were the

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main introducers and companions in narghile smoking (73.7%), and home was the main setting for the habit (68.4%). Whereas the hygienic practices related to narghile smoking were below the required level, narghile smokers reported a satisfactory level of oral health practices and were aware of the health risks associated with this habit.

**Conclusion:** Narghile smoking is showing popularity among Jordanian educated working women who invariably have children. Social influences seem to be the major player in shaping women's smoking behavior, whereby close family and friends are the introducers and home is the favorable place for practicing the habit. Specific measures are needed to educate women, their husbands and children of the health hazards of narghile especially that children are adversely affected on different levels.

**Keywords:** Jordanian; women; education; narghile; tobacco.

1. **INTRODUCTION**

In many Arabic countries, narghile smoking (NS) is common and whilst normally practiced by men, it is gaining increasing popularity amongst women. Statistics for the prevalence of NS among young Arab females are disturbing, particularly in countries such as Syria [1], Jordan [2], Egypt [3] and Lebanon [4]. The prevalence is also relatively high among Palestinian girls [5] and those in the gulf region [6]. A number of factors may contribute to this phenomenon. Whereas cigarette smoking among females is still considered a social taboo in conservative Arabic societies [7], a permissive and even encouraging role is invariably adopted by society with respect to NS.

Among many other issues pertaining to women, the Jordanian government considers the advancement of women a national priority [8] and with respect to education and employment, the aim is that women should share equality with men. From a social perspective, the habit of NS has been linked with modernization, spending power and education [2] and there is a common misconception that the practice has no health risks [9,10]. In the present study, we wanted to extend previous observations on the prevalence of NS in females [3,10,11] and examine the practice of NS in educated working Jordanian women who were married and had children. We examined 1) the number of users of different types of tobacco, particularly NS; 2) the attitudes of narghile smokers (NSs) to their habit, together with their willingness to stop NS; and 3) the awareness of NSs to oral health and their perceptions about the harmful effects of NS. We believe that only by determining women's attitude towards NS and evaluating actual practice can appropriate anti-smoking campaigns be devised and government policy developed. We particularly targeted working married women who have children because the education of both parents and children alike will be fundamental to the success of any national anti-smoking directive.

2. **MATERIALS AND METHODS**

2.1 **Data Collection**

This study was a cross-sectional survey of female employees at the University of Jordan. The study sample was conveniently selected and subjects were derived from all of the Faculties, Institutes and Centres of the University. The distributed questionnaire was in Arabic and had been validated previously [2]. In brief, each question was read to 5 volunteers, checked for clarity of meaning and, as necessary, modified until there was
consistency between all of the volunteers. As a separate exercise, the questionnaire was distributed to a further 10 women and after 1 week, the process repeated. The completed questionnaires were compared to ensure that the answers were similar, thereby confirming, albeit in part, the clarity of the questions; vague questions were modified accordingly. The questionnaire was structured into 1) demographic data of age, educational level, marital status and number of children, 2) history of tobacco use in general and NS specifically and 3) medical issues such as awareness of the health hazards of NS and willingness to stop the habit, general medical health and oral health.

The questionnaire was anonymous and researchers KA and NK were available at the time of completion of the questionnaires to explain questions when necessary.

2.2 Statistical Analysis

The statistical analysis program SPSS (Statistical Package for Social Sciences) version 17.0 (SPSS, 2008) was used to undertake all the statistical analyses. For the categorical data, descriptive statistics were used to calculate frequencies for each category. However, for the numerical data descriptive statistics were used to point out the maximum and minimum values and to calculate the mean and the standard deviation. Cross tabulation and Chi-square test were used to test for significant difference between categorical data at the level of .05 P value at the 95% confidence interval.

3. RESULTS AND DISCUSSION

3.1 Demographic Data

In the year 2010, the number of University of Jordan's employees was 3059, of these 1011 (33%) were women. The number of women participating in the survey was 96. Four individuals declined to participate in the study. The demographic characteristics of the sample are shown in Table 1. Age range of participants was 25-55.5 years (Mean=34.5, SD= 8.3). Twenty four of 96 women were smokers; of these 24 women, seven responded that they were smokers whilst the remainder declined to admit the habit however they responded positively to other questions pertaining to NS like the setting of, or the introducers to NS. Among the 24 smokers, five women were cigarette smokers, one woman smoked both cigarettes and narghile and 18 women smoked narghile exclusively. Thus, the study groups consisted of 19 narghile smokers (20%), five cigarette smokers (5%) and 72 non smokers (75%). There were no statistical differences between narghile smokers and non-smokers in terms of age, marital status, education and number of children. Mean age of NSs was 34.2 years with age range of 25-45.5 (SD=7.8), while non smokers’ mean age was 34.6 years with age range of 25-55.5 (SD=8.6). Mean number children for NSs was 1.95, and mean number of children for non-smokers was 1.65. While the majority of participants (42.7%) had a bachelor degree, a minority (8.3%) had a masters degree and one participant did not declare her education level.
Table 1. Demographic characteristics of participants in relation to their smoking habits

| Age group in years | Non-smokers | NS | Cigarette smokers | Total N (%) | P value |
|--------------------|-------------|----|-------------------|-------------|---------|
| 21-30              | 27          | 6  | 1                 | 34(35)      | .91     |
| 31-40              | 25          | 9  | 3                 | 37(39)      |         |
| 41-50              | 19          | 4  | 1                 | 24(25)      |         |
| 51-60              | 1           | 0  | 0                 | 1(1)        |         |

| Educational level | Non-smokers | NS | Cigarette smokers | Total N (%) | P value |
|-------------------|-------------|----|-------------------|-------------|---------|
| High school       | 11          | 1  | 1                 | 13(13.5)    | .89     |
| Diploma           | 24          | 7  | 2                 | 33(34.4)    |         |
| Bachelor          | 28          | 11 | 2                 | 41(42.7)    |         |
| Masters           | 8           | 0  | 0                 | 8(8.3)      |         |

| Marital status    | Non-smokers | NS | Cigarette smokers | Total N (%) | P value |
|-------------------|-------------|----|-------------------|-------------|---------|
| Married with children | 40          | 14 | 4                 | 58(60.5)    | .23     |
| Married with no children | 11          | 2  | 0                 | 13(13.5)    |         |
| Single            | 21          | 3  | 1                 | 25(26)      |         |

3.2 Characteristics of Smokers

No narghile smoker indicated the frequency of their practice. The mean age of onset of NS was 27.5 years with an age range of 20-40 years (SD=5.5). By contrast, the mean age of onset for cigarette smoking was 21.2 years with a range of 10-30 years (SD=7.0). The social aspects of NS are shown in Table 2. Briefly, individuals practiced NS within the home environment and shared the habit with close family and relatives.

Table 2. Social characteristics of the practice of NS

| Introducer (n) | Companion (n) | Favorable place of NS (n) | Married women’s practice of narghile smoking (n = 16) |
|----------------|---------------|---------------------------|------------------------------------------------------|
| Friend (7)     | Friend (6)    | Home (13)                 | Sharing narghile with husband (11)                   |
| Husband (3)    | Husband (3)   | Café (3)                  | Smoking narghile while pregnant (1)                  |
| Relatives (7)  | Relatives (8) | Café/home (1)             | Children attending narghile smoking (4)              |
| Alone (1)      | Alone (1)     | Farm (1)                  |                                                      |
| No reply (1)   | No reply (1)  | No reply (1)              |                                                      |

3.3 Disposable Parts

Disposable mouth pieces (mabsams) and hoses are available to promote hygienic NS. In the present study, 12 women used mabsams, 5 women did not use mabsams and 2 women were unaware of their availability. When asked if they still smoke narghile when mabsams are unavailable, 12 women reported that they would still smoke, 6 women would decline to smoke and 1 failed to reply. The material of mabsams used routinely was: gypsum (1), metal (3), plastic (10) and wood (5). With respect to disposable hoses, 8 women reported that they would want to use a disposable hose in a cafe, 9 women would not use it and 2 women failed to reply. When disposable hoses were not available, 10 women would smoke, 6 women would resist the practice completely and 3 women failed to reply.
3.4 Medical Aspects and Oral Health Awareness

Among the non-smokers, 7 women reported that they had medical problems compared to 4 women who smoked (3 were NSs). When the study sample was stratified for medical history, there were no significant statistical differences between the number of non-smokers and smokers \( (P=.46) \) and between non-smokers and NSs \( (P=.45) \) at the 95% confidence interval.

Regarding oral hygiene practices, all participants brushed their teeth daily, with most using dental floss and a mouth wash daily. 24 participants (25%) visited the dentist regularly compared to 33 (34%) women who reported that they never visited the dentist; the remaining participants, including 16 NSs, attended a dentist as required.

19 of 19 women who were NSs (100%) stated that NS was harmful, a figure that compared to 67 of the non smokers (93%); 8 women gave no reply to the question. With respect to whether NS was more harmful than cigarette smoking, both NSs \( (n=12; 63\%) \) and non-smokers \( (n=42; 62\%) \) thought that this statement was true. The harmful effects cited by the participants included infections, stomach problems, lung disease, cancer and lung cancer, halitosis and heart problems.

3.5 Cessation

12 women (63%) stated that they were interested in stopping NS whilst the remaining 7 women reported that they would continue the practice. 11 women had already tried to stop NS but explained that this was difficult because it was fun, it had a pleasant taste and it was encouraged by family and friends.

3.6 Discussion

This study examined the prevalence of NS, together with practices, attitudes and health awareness, in women employed by the University of Jordan. The University was established in 1962 and was the first Institution of Higher Education within the country. It employs a total of 1011 women and is an ideal study group to examine the views of educated women. We recruited approximately 10% of this workforce to the present investigation and whilst we acknowledge that this sample is relatively small, the results demonstrated a number of interesting trends.

The sample was a convenient sample as it was not possible for the researchers to meet just the subjects suggested and randomly chosen by the statistical analysis software which selects participants based on their university ID numbers.

Previous studies that have described the smoking behaviour of Arabic women have focused on the young and adolescent age group [2-4,12-15]. By contrast, the present study relates to NS in educated women who were invariably married with children. Interestingly, the immediate response of these women was to deny the practice of NS. However, they gave positive responses to the questions that followed and those were targeting the actual practice of NS. These findings suggest an element of guilt or stigma associated with NS and the fact that the age of onset of NS (mean 27.5 years) was later than that of cigarette smoking (21.2 years) is consistent with the view that there is an initial resistance to the practice. Another explanation could be that NS became popular quite recently [16]
particularly within the female gender. Therefore, despite the tobacco industry targeting women through advertisements portraying smoking as associated with independence, stylishness, weight control, sophistication and power [17], together with the Government’s consistent efforts to empower women, it would appear from the results of the present study that family and cultural rules play a more important role in shaping the social behavior of women.

One of the most striking findings of the present study was the fact that highly educated women were ignorant of the routine hygienic measures that are available for the practice of NS. Women gave an equivocal response regarding their knowledge of the availability of mabsams and disposable hoses and many reported that they would continue to practice NS even in situations where disposable equipment was not available. The low-level awareness regarding "hygienic" practice of NS may be due to the social attitudes of these women who prefer to smoke narghile privately at home and with close relatives and friends, reducing concerns of cross-infection and making the use of disposable items unnecessary. By contrast, NSs were aware of the need of oral health by being regular attendees at dental surgeries and were aware of the health risks associated with NS. These rather conflicting observations suggest that there is a fundamental lack of understanding about NS usage and parallel what is known about cigarette smoking. On the one hand, individuals are aware of the health risks associated with smoking but either do not want to stop or cannot give up the practice due to social pressures or more seriously addiction.

The results of this study demonstrated that NS was invariably practiced in the home environment, with participants being introduced to the practice by close family and relatives. This may be attributable to time constraints on young mothers, the importance that the husband has consented to the practice; the stigma of smoking in public and/or the belief that smoking in the home carries less risk of cross-infection. Home NS, however, is likely to occur in front of young children and this has both biological and social implications. It was shown that NS results in environmental emissions of ultrafine particles, polyaromatic hydrocarbons, volatile aldehydes, and carbon monoxide well in excess of those resulting from cigarette smoking [18], all of which are likely to be inhaled by children whose parents participate in NS. With respect to the social impact of NS, children will inevitably observe their parents' smoking, will accept it as the norm and thus will be pre-conditioned to accept the practice when they are adolescents and young adults. The setting of the narghile itself which consists of unsafe components of ignited charcoal in the closed home environment presents a hazard to nearby children. Again, the issue of education would appear to be relevant because our sample was specifically derived from educated women working in a university environment and it might have been anticipated that they would have been extremely cautious of NS in front of children and possibly, would wish to set an example to their offspring. Efforts of healthcare workers [19] should be joined with those of religious leaders whether Muslim or Christian, in order to increase health awareness as well as social values.

In 2010, the Jordanian Department of Statistics conducted a survey that included 11,885 families residing in different parts of the country and reported that NSs constituted approximately 11% of tobacco smokers and 6% of the study population [20]. The prevalence of NS, therefore, remains widespread. In the present study, we demonstrate that the health and social risks of NS start in the home and children take this practice forward into adulthood due to social and cultural pressures despite high levels of general education. Jordanian society has shown acceptance and even approval of NS in young females and, in the main, this appears to be undertaken in cafes and social gatherings [2]. We suggest that it is now important to develop a different consensus of the harms of NS.
4. CONCLUSION

The results of the present study suggest that any anti-NS campaign must target the home and both young mothers and children. The fact that a number of participants expressed a desire to stop the practice of NS gives some cause for optimism.

CONSENT

Authors declare that a written informed consent was obtained from subjects participating in the study.

ETHICAL APPROVAL

Ethical approval for the study was obtained from the Scientific Research Committee of the Faculty of Dentistry, University of Jordan

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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