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Taking a Stand: An Untapped Strategy to Reduce Waterpipe Smoking in Adolescents

Rathi Ramji, Maria Nilsson, Bengt Arnetz, Ywonne Wiklund, and Judy Arnetz

ABSTRACT

Introduction: Waterpipe use amongst adolescents is on the rise globally. Thus, there is a need to understand adolescents’ attitudes towards and perceptions of waterpipe use in order to develop specific interventions against this form of tobacco use. Methods: Focus group interviews were conducted among 37 Swedish adolescents (14 boys and 23 girls) from grades 10 to 12. Waterpipe users and nonusers were interviewed separately, with two groups each for users and nonusers. Interviews were audiotaped, transcribed, and thematically analyzed using content analysis. Results: Six themes emerged including taking a stand, weighing the risks, Lack of knowledge, Social context, Waterpipe new and unknown, and Family influence. Taking a stand was about being able to stand up for one’s own views rather than giving in to peer pressure to smoke waterpipe. Participants feared harming others via secondhand smoke and expressed criticism of the tobacco industry. Participants considered the health consequences and feared addiction. Lack of knowledge concerning health effects of waterpipe smoking due to the unavailability of credible information was also reported. Waterpipe smoking was considered a social event carried out in the company of friends. Perceived as novel and fun, waterpipe was smoked out of curiosity. Parents’ and siblings’ smoking behaviors influenced adolescent waterpipe use. Conclusion: Adolescents reported lacking information about the possible health effects of waterpipe smoking and that gaining such knowledge would make it easier for them to take a stand and refuse smoking waterpipe. Prevention strategies should focus on providing adolescents with factual information about the dangers of waterpipe use.

Introduction

A growing number of studies suggest a high prevalence of waterpipe use among adolescents globally, posing a serious threat to public health (Barnett et al., 2017; Jawad, Jawad, Waziry, Ballout, & Akl, 2016; Jawad et al., 2018; Kulak et al., 2018; Majeed, Sterling, Weaver, Pechacek, & Eriksen, 2017; Ramji et al., 2017). According to a Swedish national assessment by Council for Information on Alcohol and Other drugs (CAN), nearly one fourth of high school students had ever smoked waterpipe (Englund, 2014). Further studies from Northern Sweden showed that nearly 30% had ever used waterpipe and 15% reported use of waterpipe in the past 30 days (Ramji et al., 2017). Adolescence is an age where individuals are primarily drawn towards novel, exciting, or rewarding experiences like waterpipe smoking (Hampson, Andrews, Severson, & Barckley, 2015). This form of smoking, considered traditional in Middle Eastern cultures, has become increasingly popular in the western world (Maziak et al., 2015). Waterpipe is also known by other names such as shisha, hookah, narghile, goza, and hubble bubble (Maziak, Ward, Soweid, & Eissenberg, 2004). Adolescents have been reported to initiate waterpipe smoking out of curiosity and due to peer pressure (Akl et al., 2015). Perceived as a less harmful alternative to cigarettes amongst adolescents, waterpipe smoking is considered a socially acceptable practice even among parents who disapprove use of other forms of tobacco (Akl et al., 2015).

Previous studies show that adolescents believe that the water within the waterpipe apparatus filters out harmful substances, thus making waterpipe smoking safe (Aljarrah, Ababneh, & Al-Delaimy, 2009; Griffiths, Harmon, & Gilly, 2011; Martinasek,
However, several studies have shown that waterpipe smoke contains substantially higher quantities of harmful substances than cigarettes (Waziry, Jawad, Ballout, Al Akel, & Akl, 2017). From a single session of waterpipe use lasting approximately an hour, waterpipe users are exposed to \(~1.7\) times more nicotine, \(6.5\) times more carbon monoxide, and nearly \(50\) times the tar as compared to smoking a single cigarette (Shihadeh & Saleh, 2005). While carbon monoxide toxicity has been reported as an acute effect of exposure to waterpipe smoking, particularly in adolescents (Kocak, Akbas, & Cakir, 2017), waterpipe use has also been associated with lung cancer, respiratory illness, low birth weight and periodontal disease (El-Zaatari, Chami, & Zaatari, 2015; Waziry et al., 2017).

Considering the health effects of smoking waterpipe (Waziry et al., 2017), as well as exposure to second hand smoke (Kumar, Davies, Weitzman, & Sherman, 2014), preventive measures must focus on controlling this emerging form of tobacco use, particularly among young people. Quantitative studies on determinants of waterpipe use among adolescents have identified socializing, relaxation, pleasure, and entertainment as primary motives (Smith et al., 2011). Review studies exploring attitudes towards waterpipe use among adolescents have concluded the need for qualitative studies to better understand and conceptualize determinants associated with waterpipe use in adolescent. Such knowledge is a prerequisite for designing and implementing interventions specifically addressing waterpipe smoking (Akl et al., 2015). A previous study (Roskin & Aveyard, 2009) qualitatively explored perceptions of college-aged waterpipe smokers, aged 18–25 years, where nine themes were identified concerning beliefs about waterpipe smoking. These included cultural context, relaxation, social appeal, novelty, health beliefs, health problems, knowledge, family acceptance, and desire to quit or change. However, the study had the limitation that they had asked only the waterpipe smokers about why they were smoking and did not explore the perceptions of nonsmokers (Roskin & Aveyard, 2009). According to previous studies on cigarette smoking, exploring both smokers’, and nonsmokers’ attitudes concerning the intention to smoke can provide critical information in designing effective control against this growing problem (Ashley et al., 2000; Mazanov & Byrne, 2002). One study conducted interviews among adult smokers and nonsmokers, but the themes were influenced by the cultural context in Syria, where waterpipe smoking was a traditional practice (Maziak et al., 2004).

However, the views of young people may differ substantially from those of adult populations.

The developmental period of adolescence differs from that of college-age students (emerging adults), which in turn influences their choice of exploring risky behaviors (Arnett, 1994). In contrast to college-age students who make more independent decisions and are less subjected to parental control, adolescents are still dependent protected by their parents, and strongly influenced by their peers. Thus, results from studies in college age students or adults may not effectively reflect adolescent’s perceptions and views towards choice of risky behaviors (Arnett, 2001). To the best of our knowledge, there are few qualitative studies on perceptions of waterpipe use among adolescents. The aim of this study was to qualitatively explore and understand adolescents’ attitudes and perceptions towards waterpipe smoking.

**Methods**

**Participants**

Students from two large high schools in Umea, a town in Northern Sweden were invited to participate in this study. The research team approached the school superintendent with the support of the municipality that governs the schools and secured permission to recruit participants for the study. The focus group discussions were conducted in the spring of 2015. Posters were placed on the school notice boards with information about the study and enrollment. Flyers were also distributed in the common areas of the schools including library, cafeteria, and lunch halls. Interested participants responded via e-mail and provided information on their waterpipe use status, that is, ever user versus nonuser. The informants were purposively selected with an aim of representing boys and girls with or without experiences of waterpipe smoking, who were 16–18 years of age. A total of 37 students participated in four groups; two groups with about 18 participants who had not smoked waterpipe and two groups with 19 participants who had smoked waterpipe (Table 1). Initially, 40 high school students volunteered to participate in the study. However, on the day of the focus group session, three of the students were unable to attend.

To the best of the authors’ knowledge, all participants in this study were born and raised in Sweden. However, the researchers did not gather demographic information from participants such as age or ethnicity.
Table 1. A summary of demographic information of participants in this study.

<table>
<thead>
<tr>
<th></th>
<th>Waterpipe smoker</th>
<th>Waterpipe non-smoker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>8 (44%)</td>
<td>6 (32%)</td>
</tr>
<tr>
<td>Girls</td>
<td>10 (66%)</td>
<td>13 (68%)</td>
</tr>
<tr>
<td>School Grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 10</td>
<td>4 (22%)</td>
<td>4 (21%)</td>
</tr>
<tr>
<td>Grade 11</td>
<td>7 (39%)</td>
<td>9 (43%)</td>
</tr>
<tr>
<td>Grade 12</td>
<td>7 (39%)</td>
<td>7 (36%)</td>
</tr>
</tbody>
</table>

Design and data collection

Focus group interviews were conducted using an inductive approach, which was considered most suitable for exploring the range, depth, and complexity of adolescents’ perspectives of waterpipe use. The focus group interviews aimed at generating diverse views on initiation of waterpipe use and to explore differing perspectives between waterpipe smokers and non-smokers. Individual experiences were explored in depth to understand waterpipe smoking or nonsmoking trajectories of the individual participants.

Adolescents were assigned into groups based on their waterpipe smoking status, with eight to nine participants per group. Four sessions were conducted, two with waterpipe smokers and two with non-smokers, each lasting for ~60–80 min. Two interviewers moderated the focus group sessions in designated group rooms on the school campus; groups were held after school hours without any school staff present. A research assistant accompanied the moderators and made notes of nonverbal observations and reactions of the participants. Participants were informed that the discussions would be audiotaped and that the material would be used for research purposes only. All participants gave verbal consent before the session start. According to the Swedish law SFS 2003:460, those above age 15 years can provide informed consent for self and do not require parental consent. At the end of the focus group session, all participants received a cinema gift card worth 100 SEK (~12 USD) as compensation for giving their free time to this study.

Interview guide

Two focus group interview guides were developed, one for waterpipe ever-users and the other for nonusers. The semi-structured interview guides were thematic and flexible and probing was used. The interview guide was developed and tested by the research team based on an adapted version of the socioecological model for health promotion (Ramji et al., 2015). All interviews were conducted in Swedish and were transcribed and translated into English by professionals who are fluent in both languages and had research experience.

For both groups, questions began broadly, addressing the general environment both at school and in the city, followed by questions on use of other nicotine-containing products (including cigarettes, e-cigarettes, and snus), and then focused on waterpipe, specifically. The interview guide for the waterpipe users included questions on waterpipe use patterns, perceptions prior to initiating use, reasons for testing waterpipe smoking, parental acceptance towards waterpipe use and the impact of media on waterpipe use, addiction and thoughts on quitting. Some of the questions included were—what are the main factors you think influenced your decision to smoke waterpipe? How will your school staff and family members respond to your choice of smoking waterpipe? How does media affect your choice to smoke waterpipe?

Focus groups were conducted until there were fewer new thoughts brought up and no new information emerged from the discussion, that is, thematic saturation was achieved (O’Reilly & Parker, 2013).

Data analysis

Audio recordings were transcribed verbatim by a trained transcriber. The four transcripts were analyzed using content analysis (Weber, 1990), and explored to identify relevant themes. Unlike other qualitative analytical techniques, an inductive approach is used to uncover key themes that are relevant to the research objectives (Thomas, 2006). Two researchers independently worked on the transcripts to identify codes for each response after repeated reading. The process was carried out several times until definitive themes emerged and no new themes were identified, that is, data saturation was reached. The themes were discussed between the first two researchers until they jointly agreed on a final list of themes. During the discussion of codes between the first and second researcher more than 80% agreement was achieved through manual counting. These codes were then placed in categories with accompanying descriptive definitions. A third researcher repeated the same method independently and reviewed results from the analysis made by the first two researchers, and validated their findings.
Qualitative rigor

The focus group study was planned based on the consolidated criteria for reporting qualitative research (Tong, Sainsbury, & Craig, 2007) and following Guba and Lincoln (1989) criteria for credibility, transferability, dependability, and confirmability. Credibility was achieved through a systematic and rigorous approach for data collection and analysis. We strived for transferability by sampling participants from schools with diverse student populations. We attained dependability by involving a third researcher, who had not been involved in the previous coding process, to review all the data. We achieved confirmability by the use of audio recordings and by using direct quotes in the findings section. By including multiple investigators in the analytic process, triangulation was performed.

Addressing reflexivity included introspection as a means to enhance trustworthiness (Finlay, 2002). During data collection and analysis researchers strived for awareness of the association between own understanding to that of the participants as well as their social context. While retrospective reflexivity was used, the challenges on the interpretation of results owing to reflexivity were also addressed by peer debriefing and triangulation through inclusion of multiple investigators in both the focus groups and transcript analysis (Malterud, 2001).

Ethical considerations

The Institutional Review Board of Uppsala University determined that the study did not fall under the Swedish rules requiring approval by an Institutional Review Board (DNR 2015/026). All participation was voluntary, and the participants were informed that they could leave the discussion at any time without any explanation or consequences.

Findings

Six themes emerged from the qualitative analysis: taking a stand, weighing the risks, lack of knowledge, social context, waterpipe new, and unknown family influence. An overview of the themes and subthemes with definitions is presented in Table 2. Each theme is explained in detail below with verbatim examples of participants’ comments.

Taking a stand

Participants, especially the non-users, believed that one must be able to decide for themselves rather than just giving in to social pressure. Three subthemes emerged from this theme including choice, harm, and the tobacco industry.
Choice

Nonusers reported that if they decided not to smoke then they would not do so, even if their friends insisted, since it is their right to make decisions for themselves and they need to stand up for their decision. They believed that it would affect their image but it did not bother them as long as they could voice their opinion. A participant mentioned that one person’s decision to not smoke waterpipe could make it easier for others to withstand peer pressure also.

“'It’s like … if we’re a group and the majority are going to go out and smoke, I can just say, ‘No, I’ll stay right here inside.’ I mean, I just don’t want to. And I think that then, others who didn’t feel able to say no can dare to say no just by saying, ‘Oh, I’ll hang in here with her (name).’ I mean, I think it rubs off on others. So when I dare to stand up for my opinions, it rubs off on others.” (Interview group 4, Female, non-user)

Participants who had tested waterpipe smoking felt that they did it of their own will and not just because of social pressure. A participant mentioned, “I’m going to die anyway.” Although she was aware that waterpipe use could be dangerous, she felt there were many more risks one faces on a daily basis, with or without her concern. Therefore, she believed she had made a choice to smoke and therefore would continue.

“I didn’t think about my health at all when I tried to smoke and stuff because I’m not so worried in general. I’m going to die anyway … that’s kind of how I think. Of course, I know it can accelerate it but I’m not so worried about myself that something can happen. I rarely do fun stuff, so I’m not going to get addicted and it’s not dangerous I mean, it’s dangerous but I don’t care if it’s dangerous because I know the consequences but I still choose to do it so that it’s my fault if anything happens to me” (Interview group 2, Female, waterpipe-user).

Harm

Although participants discussed that, it was their personal choice whether to smoke or not, they were concerned about the dangers of harming nonsmokers in the same environment.

“….One just cannot always consider the smoker himself. A person, who has smoked all his life, has also affected his environment. Their children may have asthma or similar problems.” (Interview group 3, Male, non-user).

Tobacco industry

Nonusers reported to refrain from the use of tobacco products because of the immoral practices followed by the tobacco industry, including child labor. The participants felt empathetic towards the children who eventually died of cancer or other serious illnesses.

“I’m very against the tobacco industry as a whole. That’s what is primary … that is what keeps me from smoking of any kind. It is just tobacco … yes but also child labor in tobacco fields and as it is a very dirty industry that I do not want anything to do with.” (Interview group 3, Female, non-user).

Weighing the risks

Weighing the risks emerged as another theme with Health and Fear as subthemes. All participants reported that they cared about their health and would refrain from waterpipe use if they did not feel well when using it.

Fear

Apart from not feeling well, participants also expressed fear of getting exposed to diseases like cancer, and said they would stop smoking waterpipe if they had more information on the acute impact of smoking.

“… I don’t want to smoke as a rule. So if I find out that it’s like smoking ten cigarettes, I would never do it. And if I know that it contains nicotine. Because it feels like you would get cancer, and lung disease, because of it.” (Interview group 2, Female, waterpipe-user).

Health

Participants were also concerned about the possibility of being addicted with repeated use.

“If they have started to smoke first, and then switch to snus. So it may begin with the social thing and then develops into an addiction.” (Interview group 2, Female, waterpipe-user).

Lack of knowledge

The third theme that emerged concerned the lack of factual knowledge about waterpipe. Participants expressed being unaware of the risks that might be associated with waterpipe use, and they were unsure if the information they do find is credible, due to differing and misleading views on the media. Uncertainty and Marketing were emergent sub-themes within this theme.
Uncertainty
Users and nonusers reported that they had heard that waterpipe smoking was dangerous to health as well as not, so they were unsure as to which information was credible, thus making it difficult to make informed decisions about whether or not to smoke waterpipe.

“I have seen advertisements saying - Waterpipe smoking is 40 times worse than cigarettes… But you do not know if it is true or not because they write so much … in the media….so you are unsure” (Interview group 1, Male, waterpipe – user)

Marketing
Participants remarked that waterpipe products are marketed and sold in attractive packages with no information on the contents or health effects, such as with cigarette packets. Participants also reported that the text on the waterpipe product packages were often in a foreign language.

“On cigarette packets it says that you will die prematurely, and blah, blah, blah. But it does not say that on the waterpipe tobacco package … labels are also usually in Arabic.” (Interview group 2, Female, waterpipe-user)

Social context
The subthemes that emerged from the main theme Social context included Meeting with friends, and Peer pressure.

Meeting with friends
Both waterpipe smokers and nonsmokers perceived waterpipe use as a social activity done in the company of friends. Unlike smoking cigarettes, which is a more casual event, waterpipe smoking was described as happening on specific occasions, such as at parties, during weekends or in summer.

“One does it at a party or at someone’s place when it is a party or a Friday evening or something like that.” (Interview group 4, Male, non-user)

Peer pressure
Participants described waterpipe smoking as something done together with a group of friends and seldom alone. Waterpipe use more often began when one was part of a circle of friends who smoked waterpipe. Some waterpipe users reported having been hesitant to try smoking, but that they felt they had to, in order to be part of their group.

“It’s like, you can’t say no because your friends judge you for it. It’s like they may stop associating with you or something like that if you don’t do it.” (Interview group 1, Female, non-user)

Waterpipe—new and unknown
Regardless of their smoking status, the participants in this study considered waterpipe use as a novel practice, which is associated with a pleasant odor unlike that in cigarette smoke. Participants described being drawn by the appearance of the waterpipe, which comes in different, shapes, colors, and sizes.

“It was a friend who had one with at a party. That is when I tried. For it was something new.” (Interview group 3, Female, waterpipe-user)

“I thought it looked like a toy.” (Interview group 3, Male, waterpipe-user)

Four subthemes were identified within this theme including curiosity, excitement, experience, and image. Waterpipe users as well as some nonusers mentioned that waterpipe smoking was often tested due to curiosity. Adolescents were attracted by this novel form of smoking and often felt the urge to try.

Curiosity
“…. I’m very much looking for the feeling. I think it is like that … yes but it is a nice feeling when you try … try different stuff. So, those who don’t test it might not be so curious about how it feels.” (Interview group 3, Female, waterpipe-user)

Excitement
Participants also mentioned that waterpipe users are usually stimulated by watching others smoke, and usually dare to try experiences without accounting for the consequences, just for the sake of what is mentioned as a “kick”.

“Everyone’s looking to get a kick in some way or the other … Maybe not everyone, but many people are looking for a kick. Like this adrenalin rush that one gets. And it’s just that there are many different paths there …” (Interview group 4, Female, non-user)

Experience
In general, waterpipe smoking was considered a cool and relaxing experience among those who had ever smoked it. Waterpipe smoke was perceived as heavier and more satisfying compared to other tobacco products. Participants commonly mentioned feeling thrilled with waterpipe smoking, especially the pattern of exhaling smoke to make smoke rings.
“It’s a cool trick. To blow out eight rings and then blow a little ring through all of them” (Interview group 1, Male, waterpipe user)

**Image**

Nonsmokers associated waterpipe use with alternative cultures, particularly with groups practicing alternative styles, like hippies.

“… the waterpipe gangs are more, as I have noticed at least, they tend to be a bit alternative or minorities… the groups aren’t very big. But, if you hang out in those gangs, you meet people like that pretty often. If you look at the bigger picture, from a societal perspective, it’s like a hippie festival. … A hippie festival actually feels very waterpipe-related, to be honest …” (Interview group 4, Female, non-user)

**Family influence**

Family influence emerged as a theme by itself with Respect versus control, parents/siblings, and culture/tradition/religion as the three subthemes.

**Parents and siblings**

The level of restrictions on smoking waterpipe and other tobacco products was considerably lower in households where parents and siblings smoke.

“If my parents smoke and I start smoking then they cannot say in principle to me that … I cannot smoke. If they say I shouldn’t one can ask, why are you doing it then? You reflect on them” (Interview group 1, Male, waterpipe-user)

**Respect versus control**

Some parents did not permit waterpipe use and children refrained from use of any kind of tobacco product out of respect for their parents.

“… I have so much respect for my parents. I know they would not be so thrilled. I mean, I guess they don’t really have much of a say, if I were to start smoking waterpipe or smoking or using snus. But I don’t do it, because of myself and others and the respect that I have for my parents.” (Interview group 3, Female, non-user)

Conversely, participants reported that too much parental control could push them into going against parental demands.

“… If children feel that mom and dad are controlling them very, very much. Then they tend to do the opposite.” (Interview group 4, Female, non-user)

**Culture and tradition**

In some families of immigrant background, waterpipe smoking was part of their culture and tradition, and children smoked waterpipe together with their parents and relatives.

“It also depends on the culture you grow up in. In the Middle East, it’s pretty common to smoke waterpipe … It is a cultural thing” (Interview group 1, Male, waterpipe-user)

“… For example… one sits in a cafe together with one’s family and smokes waterpipe.” (Interview group 1, Male, waterpipe-user)

Some participants also reported that they had tried waterpipe when they were on vacation with their family and frequently bought waterpipe products from abroad.

“… most of the young people buy waterpipe products when they are abroad, … When they are on vacation” (Interview group 3, Female, waterpipe-user)

**Discussion**

The results shed light on why adolescent waterpipe smokers began smoking and what made nonsmokers refrain from smoking waterpipe. Three themes including taking a stand, weighing the risk, and lack of knowledge, to our knowledge not previously reported have been identified in this study. Three other themes including social context, waterpipe new and unknown and family influence similar to those identified in prior qualitative studies among college-aged students (Hammal, Mock, Ward, Eissenberg, & Maziak, 2008; Roskin & Aveyard, 2009) and adults (Nakkash, Khalil, & Afifi, 2011) have also emerged in this study. Adolescents, regardless of smoking status, were unaware of the health effects of waterpipe smoking and thus were not able to make informed decisions about using it. Providing information on the health effects of waterpipe use may help adolescents take a stand and make the choice by saying no when offered to smoke waterpipe by their peers (Kaleta, Polańska, Rzeźnicki, Stelmach, & Wojtysiak, 2017; Weinstein, 1999). With regard to cigarette smoking previous studies show that the existing knowledge is insufficient to prevent uptake despite the widespread understanding, based on robust evidence, that cigarette smoking is harmful (WHO, 2013). With an emerging product like waterpipe (Aljarrah et al., 2009), it may be very important to identify, collect and communicate information about the harms of waterpipe...
smoking to adolescents as a first step in waterpipe prevention.

Both waterpipe smokers and nonsmokers reported conflicting information about waterpipe smoking. Although they had read and heard that waterpipe smoking was more dangerous than cigarettes, they had also heard the opposite. These findings are in line with previous research on the influence of media (television, newspaper, and social media) on tobacco use in young people showing that media provides positive and negative information about tobacco and the associated health consequences, which may in general confuse youth in making concrete decisions for or against using tobacco products (Wakefield, Flay, Nichter, & Giovino, 2003).

Some participants were aware of the long term effects of waterpipe use but they were less informed about the acute effects of smoking, which was of direct concern to them. A similar finding was also reported in a previous study on smoking cessation in adults where participants believed that effects of smoking related only to prolonged use and were unaware of the immediate effects (Oakes, Chapman, Borland, Balmford, & Trotter, 2004).

Waterpipe products are marketed in such a way that users are often unaware of what they are smoking. Unlike a packet of cigarettes where the health warning text is printed in bold letters, waterpipe tobacco packets have colorful pictures of the shisha and the stones, with texts most often in Arabic since most of the waterpipe products in Sweden are imported (Sweden PHIo, 2010). Participants who had smoked waterpipe also reported that if they had been aware of what the waterpipe products contained they may not have smoked because they cared about their health. Product information regulations must ensure that waterpipe products also bear similar information like that on cigarette packets and that all information must be in the regional language rather than foreign languages. However, a review of 62 countries revealed an almost total lack of regulation regarding the sale and regulation of waterpipe tobacco (Jawad, El Kadi, Mugharbil, & Nakhash, 2015). Thus, the need for a regulatory framework, in Sweden as well as elsewhere, is great.

Our results suggest that adolescents were willing to be autonomous and take a stand and stick by their decisions rather than letting themselves be influenced by others. However, some of them had lacked motivation to do it due to the unavailability of sufficient support. This is in line with the self-determination theory, which suggests that informing facts in an attempt to stimulate self-initiation has a positive influence on choice of behavior rather than to compel or force views on adolescents (Patrick & Williams, 2012). Considering that adolescents care about their health and exposure to diseases as well as fear that what may initial begin as a social thing may turn into addiction, the strongest motivating factor in promoting waterpipe smoking initiation and cessation would be providing factual knowledge about the health risks associated with waterpipe smoking. Studies of risk taking in adolescents have considered decision making as an important factor behind engagement in risky behaviors. Such a process significantly depends on knowledge of the consequences associated with the particular risk behavior (Furby & Beyth-Marom, 1992).

Both users and nonusers viewed waterpipe smoking as a social event and as a novel practice that was somewhat exotic. These views reflect a culture where waterpipe is not the norm, as is the case in the Middle East (Maziak et al., 2004). The social aspect surrounding waterpipe smoking was mentioned by both waterpipe smokers as well as nonsmokers, where all reported that waterpipe smoking is done at parties, during weekends or on special occasions, unlike cigarettes which are smoked casually and more generally. In previous studies (Albisser, Schmidlin, Schindler, Tamm, & Stolz, 2013; Alzohairy, 2012), as well as in the current study, participants mentioned that they tried waterpipe smoking during their summer vacations in foreign countries where smoking waterpipe was part of the local culture. We hypothesize that the participants may have purchased waterpipe tobacco during their vacation at the tourist destinations where there were no stringent laws against the sale of waterpipe products as also reported by previous studies (Nakhash et al., 2011). Thus, they had more access to waterpipe products in the summer season and were able to smoke more often when they arrived home.

In line with quantitative studies on waterpipe use (Aljarrah et al., 2009; Sidani, Shensa, Barnett, Cook, & Primack, 2014; Smith et al., 2011), participants reported that, if they were among friends who smoked waterpipe then they were more likely to try due to social pressure. While nonsmokers agreed that waterpipe smoking was social they also believed that the choice to smoke was individual and not just dependent on the influence made by friends who were smokers. Adolescents described excitement while watching others smoke waterpipe since the smoke is drawn in and out in a unique way via a mouthpiece connected to a hose unlike conventional smoking techniques. Similar findings were reported in a qualitative study.
of college students, who reported that making smoke rings made the smoking experience novel and was one of the reasons to choose waterpipe smoking (Roskin & Aveyard, 2009).

Some participants reported that they refrained from smoking if their parents disliked it, out of respect for them. However, they also stated that if parents exerted too much control, the children might get curious and explore unhealthy behaviors, such as waterpipe smoking. Therefore, a balanced parenting rather than a permissive or authoritarian style may help prevent adolescent’s exposure to not only waterpipe smoking but also other unhealthy behaviors.

**Implications of adolescents’ views**

Studies on cigarette smoking and other forms of tobacco use have explored what made adolescents use tobacco products (Castrucci, Gerlach, Kaufman, & Orleans, 2002), but this study accounted for not only why smokers chose to smoke but also why non-smokers did not smoke waterpipe. Understanding what motivates nonsmokers’ decision to not smoke may inform allocation of support and resources to waterpipe smokers so they may refrain from smoking waterpipe.

There has existed a long-standing debate on cigarette smoking being an action of free will despite arguments that peer pressure influences individual decisions (Baumeister, 2017). In this study, both waterpipe smokers and nonsmokers believed that they had made an active choice to smoke or not smoke. Choice has been a critical factor connecting most of the themes that emerged from this study, and most importantly, lack of knowledge, harm, fear, and peer pressure. Further, it is also clear that choice is based on the individuals’ capacity to rationalize their decision based on knowledge and their ability to judge (Baumeister, 2017). The results of this study as well as prior work suggests that fear tactics as well as controlling, authoritative and compelling approaches are not suitable when considering intervening against waterpipe use or any form of tobacco in adolescents (Baumeister, 2017). Interventional approaches must target communicating knowledge in an attempt to stimulate self-initiation (making own decision) instead of focusing on compliance. While providing substantial knowledge may be key in the process of taking a stand, the support from family members and school staff seems also critical. Furthermore, if an individual in a group gains courage to stand up against smoking, they may further influence a positive peer pressure on their comrades to also make a different choice. Therefore, adolescents must be encouraged to take a stand and make decisions, thus taking a stand should be the central focus of future waterpipe interventions.

**Limitations**

As in all qualitative research, results of this study could have been influenced by researcher bias, such as preconceptions of the participants among the research team members. To minimize the issue of negative impacts from preconception, the interviews were performed using a preprepared interview guide. Researchers found that four focus groups were sufficient to reach thematic saturation for the data collected, which was why we did not organize additional focus groups. We cannot know whether our findings are generalizable to the entire Swedish high school population; however, we find the results gained from the two study sites to have relevance in understanding more about the phenomenon under study (Myers, 2000). However, future studies involving other adolescents will provide a better understanding of the generalizability of these findings.

**Conclusion**

Although there exists an awareness about the health effects of waterpipe smoking among, health promotional workers and health care providers in Sweden, there are no specific interventions addressing waterpipe smoking in adolescents. The existing interventions targeting cigarette smoking are not well suited to address waterpipe smoking, as the socioecological determinants differ for these two forms of tobacco (Lopez, Eissenberg, Jaafar, & Afifi, 2017). Qualitative content analysis of focus groups provided an in-depth understanding of factors associated with waterpipe smoking in adolescents. The results of this study highlight that adolescents should receive information and facts concerning waterpipe smoking and health risks associated with waterpipe use. Future efforts should therefore be placed on developing interventions increasing such knowledge and garnering interest for receiving such information among adolescents as a first step in decreasing waterpipe smoking in this vulnerable age group.

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**References**


Kumar, S. R., Davies, S., Weitzman, M., & Sherman, S. (2014). A review of air quality, biological indicators and
health effects of second-hand waterpipe smoke exposure. 
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