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Review Article

How Social Media Makes Shisha Smoking Looks Good? A Systematic Review

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ABSTRACT

Despite the danger of shisha smoking, the freedom provided by social media means, pro-shisha smoking content can be freely shared across the platform. This could have a negative impact on youth who are frequent users of social media. They are often associated with the shisha smoking habit. Hence, this paper systematically synthesized the findings of the earlier literature related to the portrayal of shisha smoking on social media. This was performed to provide insight pertaining to the issue, which contributes to public health intervention and also for future research. Search for relevant literature was conducted using academic search engines including Google Scholar, PubMed, Web of Science, Science Direct, Scopus, and the Cochrane Library. The literature was qualitatively and thematically synthesized. The results of this review indicated that, shisha smoking is commonly portrayed as a social activity that is fun, relaxing, and desirable. At the individual level, it was also found that, social media serves as a platform for youth to express shisha smoking attitude. The findings of this review can enhance the understanding of how the portrayal of shisha smoking on different social media platforms may be interfering with public health cessation intervention. This study adds to the present knowledge with regard to the portrayal of shisha smoking on social media.

Keywords: shisha, public health, social media, portrayal, cessation, intervention

INTRODUCTION

Shisha is a device through which smoke passes through a hose with the aid of lit charcoal, aluminum foil, and water basin (Qasim et al., 2019). Shisha is regarded as a method for tobacco smoking, where it is also known as hookah, waterpipe, hubble-bubble, goza, ma'assel, mada'a, chica, borry, and qaylan (Middha & Negi, 2019; Qasim et al., 2019).

The history of shisha started in India between the years of 1556 to 1605 (WHO, 2015). It was invented by Hakim Abul Fath, who was a physician, during the era of Emperor Akbah (WHO, 2015). Shisha was introduced to people at that period time and made popular through trading activities (WHO, 2015). The widespread practice of shisha smoking can also be associated with people at the Eastern Mediterranean region (Akl et al., 2013).

Today, shisha smoking has become popular especially among youth in different countries, such as Australia, United Kingdom, Canada, the United States, as well as in the Southeast Asian and African countries (Aanyu et al., 2019; Abraham et al., 2019; Combrink et al., 2010; Israel et al., 2003; Omotehinwa et al., 2018; Wong et al., 2016). It was suggested that one of the reasons why shisha smoking is popular among youth is

because, it offers a variety of flavors to choose from for smoking pleasure, and it can 'mask' the bad scent of tobacco (Gathuru et al., 2015). Past studies also reported that, youth are more receptive towards shisha smoking due to their misconstrued believe that the habit is safer, and less addictive compared to other methods of tobacco smoking (Wong et al., 2016).

Contrary to youth's belief, shisha smoking is in fact more hazardous to health, and it is also more addictive compared to other methods of tobacco smoking (Allem et al., 2017b). According to the World Health Organization (WHO, 2015), shisha smokers are vulnerable to toxic exposure, due to the charcoal that is used to keep shisha smoke alight through the water hose. The main ingredients used to make shisha flavors are synthetic chemical derivatives of petroleum, which can cause addiction and worst, lead to health-related problems such as allergic reactions, cancer, birth defects, and central nervous system disorders (Middha & Negi, 2019).

It was reported that, one hour of shisha smoking is comparable to smoking up to one hundred cigarettes (Abraham et al., 2019). Due to its consumption at public places such as in lounges, clubs, and restaurants, which usually take place at a long period of time, shisha smoking is also contributing to high second-hand smoking effect (Wong et al., 2016).

Social Media and Shisha Smoking

Social media refers to the Web 2.0 platform that allows users to generate content and to share information and to interact with one another. Since 2003, social media has developed massively, beginning with the inception of LinkedIn, Friendster, and Myspace, and followed by Facebook, YouTube, Twitter, Tumblr, Instagram, and Pinterest (Fung et al., 2019; Greenhow et al., 2017).

The earlier studies showed that social media has a role in promoting shisha smoking behavior which could negatively influence the public (Allem et al., 2018). Social media is often associated with youth, as they make the highest percentage of users (Greenhow et al., 2017; Ismail et al., 2019, 2022). Ilakkuvan et al. (2019) added, youth are frequent users of social media as it was reported that, 88% of those between the ages of 18-29 use the platform every day. It was also reported that, 23% of youth have experience smoking shisha and more than 15% of them began trying it soon after participating in a tobacco health hazard related survey on social media (Ilakkuvan et al., 2019).

Past studies argued that social media usage has an effect on shisha smoking behavior among individuals, particularly youth. According to Singh et al. (2017), social media contributes as one of the factors that influence youth to start smoking shisha. Similarly, Maziak et al. (2015) also reported that the internet and social media facilitate the promotion of shisha smoking behavior among the youth.

While Ilakkuvan et al. (2019), Maziak et al. (2015), and Singh et al. (2017) have provided insightful knowledge on the issue, we have not found any literature that systematically reviewed the portrayal of shisha smoking on social media. Therefore, this present study attempted to systematically synthesize the literature with regard to shisha smoking related content on social media. This aimed to enrich knowledge, contribute to public health intervention, and provide direction for future research.

REVIEW METHODS

Search Strategy and Keywords

Preliminary search on the topic began in October 2020. It was performed using Google Scholar and PubMed Electronic databases. In addition to Google Scholar and PubMed, further searches were conducted in the following month using different electronic databases including the Web of Science, Science Direct, Scopus, and the Cochrane Library.

Keywords for the preliminary and extensive searches were 'Shisha' and its other names including 'Hookah', 'Waterpipe', 'Hubble-bubble', 'Goza', 'Ma'assel', 'Mada'a', 'Chica', 'Borry' and 'Qaylan' (Middha & Negi, 2019; Qasim et al., 2019). These names were combined with 'smoking portrayal' or 'expression' or 'depiction' or 'interference' or 'messages' or 'videos' or 'images' or 'content' on 'Facebook', 'Twitter', 'Instagram', 'YouTube', 'social media'.

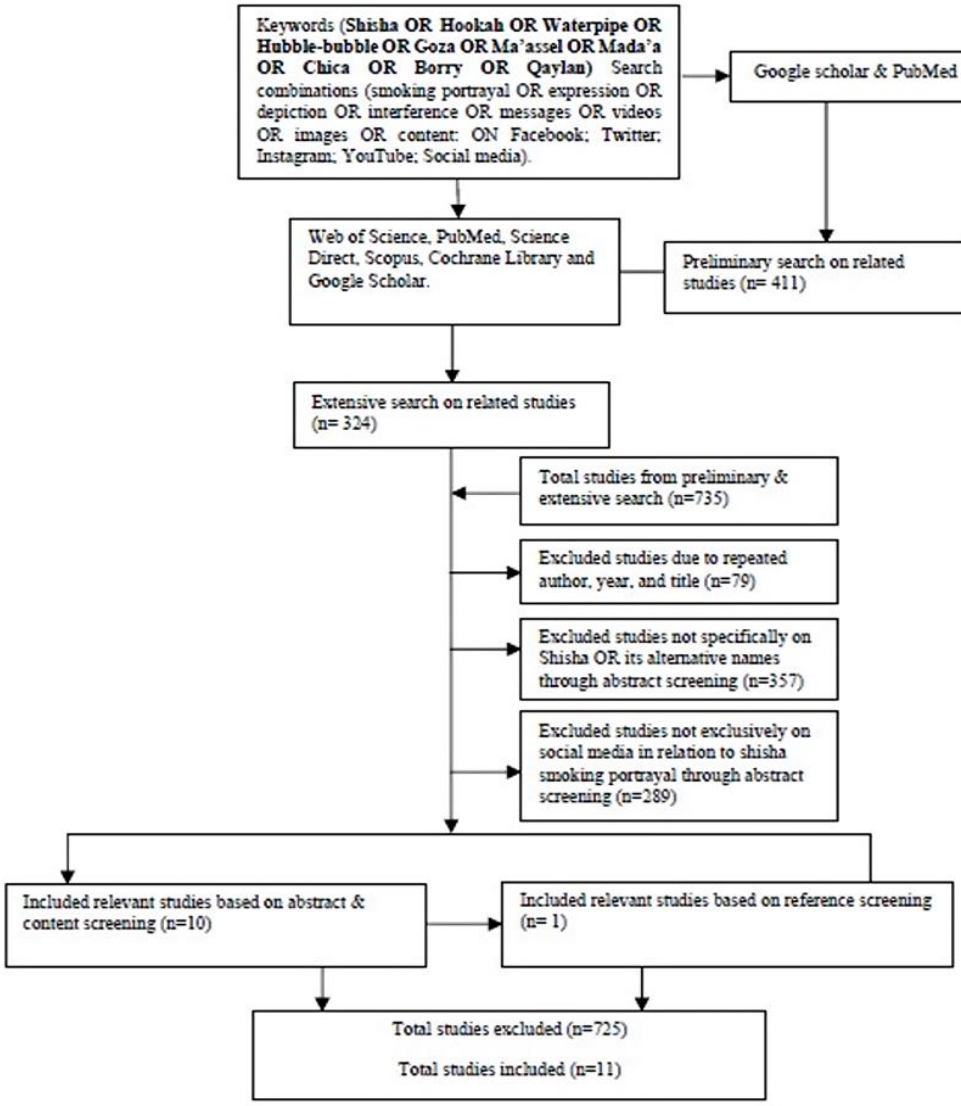

Figure 1. The flow chart showing the selection process of the included studies

The searches were restricted to studies conducted between the years of 2003-2019 only. This decision was made by taking into account the beginning of social media that can be traced back to 2003 (Greenhow et al., 2017), and the progress of our main research project on predicting shisha smoking behavior among youth, which started in 2020 with the literature review write-up. This was followed by the construction of survey instrument, data collection, analysis and report writing which took place in 2021-2022.

Data Analysis and Selection Criteria

The collected data was qualitatively analyzed and reported. Synonymous themes were identified, and findings were reported within their thematic categories and social media settings. Studies were selected through their titles and abstract screening. Final selections were performed through reading and by screening the full content of the articles, while one study on Twitter was selected through reference screening (Allem et al., 2017b).

Studies were excluded if they were not specifically on shisha or among its other names. Studies were also excluded if they were not exclusively on social media and related to shisha smoking portrayal. However, one study that compared shisha smoking with cigarette smoking on YouTube was included based on its objectives and findings that reported shisha was more positively portrayed and promoted compared to cigarette (Carroll et al., 2013). Repeated titles with the same authors and year of publication were excluded. **Figure 1** shows the flow chart for the selection of studies.

Table 1. Social media time frames for every study conducted

Platform	Study	Time frame
Twitter	Krauss et al. (2015)	April 12-May 10, 2014
	Grant and O'Mahoney (2016)	July 10-17, 2014
	Allem et al. (2017b)	March 24, 2015-December 2, 2016
	Allem et al. (2018)	April 1, 2017-March 29, 2018
Instagram	Guidry et al. (2017)	March-April, 2015
	Allem et al. (2017a)	February 19-May 19, 2016
	Ben Taleb et al. (2019)	October 18-21, 2016
Facebook	Brockman et al. (2012)	September 2009-December 2011
YouTube	Carroll et al. (2013)	January 28-March 28, 2011
Pinterest	Guidry et al. (2016)	March 20-21, 2014
Tumblr	Primack et al. (2016)	June 2013

Data Abstraction

Data was abstracted using a previously pilot tested and validated format based on a systematic review on shisha tobacco smoking which adopted the Cochrane collaboration rigorous methodology (Akl et al., 2013). The data abstraction was performed as follows:

1. **Methodology:** Sampling frame, sampling method, recruitment method, administration method, analysis method, and ethical report.
2. **Methodological quality:** Sample size calculation, sampling type, validity of tool, pilot testing, response rate, and ethical consideration.
3. **Settings:** Participants/population, percentage of shisha smokers/promotion, location and time frame, number sampled, number participated, and number analyzed.
4. **Synthesis:** Results and findings pertaining to the portrayal of shisha tobacco smoking on social media platforms.

FINDINGS

Description of the Included Studies

We included 11 studies for review based on the criteria for selection (Allem et al., 2017a, 2017b, 2018; Ben Taleb et al., 2019; Brockman et al., 2012; Carroll et al., 2013; Grant & O'Mahoney, 2016; Guidry et al., 2016, 2017; Krauss et al., 2015; Primack et al., 2016). All studies were published in peer reviewed journals and 82% of them are indexed in the Web of Science core collections. It should also be noted that, although two of the selected studies have the same first author and year (Allem et al., 2017a, 2017b), their titles and body of the articles are different, as the first is focusing on Twitter, while the second on Instagram.

The location setting of all the included studies was on social media. Out of the 11 studies selected, 37% (n=4) reported positive portrayal of shisha smoking on Twitter, 27% (n=3) was on Instagram, 9% (n=1) surveyed Facebook, 9% (n=1) assessed YouTube, 9% (n=1) on Pinterest, and 9% (n=1) on Tumblr. The time frames that every study spent to conduct research on social media was summarized in **Table 1**.

Methodology Quality

Three of the studies (27%) employed quantitative content analysis (Guidry et al., 2016, 2017; Primack et al., 2016), while the other seven studies (64%) used qualitative content analysis (Allem et al., 2017a, 2017b, 2018; Ben Taleb et al., 2019; Carroll et al., 2013; Grant & O'Mahoney, 2016; Krauss et al., 2015). The remaining study (9%) adopted the mixed methods approach (Brockman et al., 2012).

Every study reviewed provided details on their sample size calculation, while 91% of them reported the types of sampling method used. Out of all the studies reviewed that reported on sampling methods, 36% (n=4) used random sampling, 9% (n=1) employed systematic sampling, 9% (n=1) adopted systematic and stratified sampling methods, and 9% (n=1) used stratified and simple random sampling methods.

One of the studies reported response rate of the survey conducted on Facebook (Brockman et al., 2012), seven studies (64%) reported validation of tools and two (18%) reported pilot testing their instrument (Allem et al., 2017a; Krauss et al., 2015). Brockman et al. (2012) was a pilot-oriented study. In term of ethical consideration, it was reported by 72% (n=8) of the studies.

Ethics

Ethical approval was obtained from the Human Research Ethics Committee, Universiti Sains Malaysia (protocol USM/JEPeM/21020181).

Synthesis of Findings

In this review, the findings were qualitatively reported based on the following identified themes: positive descriptors, negative descriptors, shisha smoking expression, flavored shisha appeal, instructional information on usage of shisha, sales and promotion, polysubstance use, shisha smoking and promotion among youth, gender preferences, debiasing approach, and theoretical rationale.

Positive descriptors

10 of the studies reviewed contained positive descriptors of shisha. Brockman et al. (2012) reported that 5.3% of the shisha messages on Facebook were pro-smoking shisha, where youth described the behavior as being fun, desirable, and as a form of nightlife activity.

On Twitter, three studies that were reviewed also indicated positive descriptors. For instance, Krauss et al. (2015) found that 87% (n=4307) of the examined Twitter messages suggested pro-shisha smoking attitude and behavior. These 'tweeters' had over 21 million followers, which further enhanced the exposure to pro-shisha smoking on the social media platform (Krauss et al., 2015).

In a separate study conducted on Twitter, shisha smoking was described as relaxing (9%, n=223), fun (4%, n=107) and as a form of a social activity (17%, n=432) (Grant & O'Mahoney, 2016). These findings were supported by Allem et al. (2018) who reported that, 20.20% (n=35701) of the tweets associated shisha smoking with social activity while another 18.12% (n=32013) described the behavior as joyful, appealing, desirable and addictive.

On the YouTube platform, it was found that over 92% of examined videos related to shisha were pro-shisha smoking, with 36% of the videos describing the behavior as being sociable (Carroll et al., 2013). Similar findings were reported on the Pinterest platform as Guidry et al. (2016) found that 97% (n=776) of examined shisha messages were pro-shisha. On Instagram, positive descriptors towards shisha smoking were found in four studies. In a study conducted by Guidry et al. (2017), it was found that 96.6% (n=966) of the messages were pro-shisha smoking. Out of all these pro-shisha smoking messages, 89.5% (n=895) were in photos, 10.5% (n=105) videos, 60.6% (n=606) contained positive comments from followers, while 95.5% (n=955) described shisha smoking as pleasurable, relaxing and fun (Guidry et al., 2017).

In another study, Ben Taleb et al. (2019) also shared similar findings and reported the portrayal of shisha smoking identity through the use of hashtags, messages related to addiction and shisha tricks on Instagram. Meanwhile, Allem et al. (2018) reported that, 25% of the messages on Instagram displayed individuals smoking shisha in groups within social settings which was indicative of social smoking. It was also found that, shisha smoking is associated with sex on Instagram (Allem et al., 2018).

Negative descriptors

Six studies were found to provide negative descriptors towards shisha smoking behavior on social media. Krauss et al. (2015) and Allem et al. (2018) reported a very small percentage of messages that discouraged shisha smoking on Twitter. On Instagram, three studies reported negative content towards shisha smoking behavior. According to Guidry et al. (2017), only 0.1% of the messages on Instagram were negative, while Ben Allem et al. (2017a) and Taleb et al. (2019) reported 0.4% and 2%, respectively. On Pinterest, it was found that 1.8% of the content discouraged shisha smoking.

Shisha smoking expression

Expression towards shisha smoking was eminent in four studies (Allem et al., 2017a, 2018; Grant & O'Mahoney, 2016; Krauss et al., 2015). On Twitter, Krauss et al. (2015) informed that 46% of the messages involved individuals who were smoking shisha or desired to smoke shisha, and 19% originated their shisha smoking expression from music. Meanwhile, Allem et al. (2018) and Grant and O'Mahoney (2016) reported that 49% and 11.67% of expressions on Twitter were originated from those who were smoking shisha. On Instagram, Allem et al. (2017a) informed that 7% of the expression messages came from shisha smokers.

Shisha flavors and its instructional information

In their study, Allem et al. (2018) evaluated 1.66% (n=2,927) messages that depicted different flavors of shisha including grape, peach, guava, blueberry, mint, mango, orange, cinnamon, watermelon, and apple. In relation to shisha's usage instructional information, it was found that, 41% of the assessed video on YouTube provided practical instruction on shisha preparation and smoking (Carroll et al., 2013).

Sales and promotions

We identified six studies that discussed about the sales and promotions of shisha on Twitter, Instagram, and Pinterest. On Twitter, Allem et al. (2018) and Krauss et al. (2015) reported about messages related to the selling, buying and promotions of shisha at bars, lounges, and during events. Both studies found that, there were over 17000 messages on Twitter that promoted the sales of shisha (Allem et al., 2018; Krauss et al., 2015).

On Instagram, three studies were found related to the sales and promotions of shisha. Guidry et al. (2017) informed that there were 43.4% (n=434) shisha sales and promotions messages, out of which, many showed the locations for selling and buying of shisha. According to the study conducted by Allem et al. (2017a), shisha sales and promotions messages on Instagram included the use of promotional content including flyers, images of shisha devices, tobacco, and other related materials as well as images at shisha lounge, bar, nightclub, restaurant, and other locations. Ben Taleb et al. (2019) reported, 55.5% of the Instagram messages were initiated by shisha sellers, while 44.5% were by individual buyers from 35 different countries globally.

On Pinterest, we found one study that was related to sales and promotions of shisha. Guidry et al. (2016) informed that 24.4% (n=195) of the analyzed messages contained links to shisha purchasing websites, 77.9% (n=623) were originally posted shisha promotional messages by individuals and 22.1% (n=177) were re-posted photos by shisha selling companies.

Polysubstance use

Six of the studies reviewed reported on the use of shisha alongside other illicit substances. Brockman et al. (2012) indicated that 12% of the youth respondents who participated in a study involving Facebook users smoked shisha with cigarette, while the other 10% used shisha with marijuana, which indicate polysubstance abuse.

On Twitter, Krauss et al. (2015) found that 15% (n=625) of the messages encouraged the use of shisha with alcohol and marijuana. In their analysis of Twitter messages related to shisha, Grant and O'Mahoney (2016) reported that 31% of the content promoted the use of shisha with alcohol, cigarettes, cigars and energy drinks. These findings echoed with Allem et al. (2018) who found similar messages on Twitter that relate the use of shisha with other substances. Allem et al. (2017a) and Ben Taleb et al. (2019) also reported similar findings on Instagram.

Shisha smoking among youth

Brockman et al. (2012) highlighted shisha smoking among youth. Based on a survey on Facebook involving students aged 18-20, at the University of Wisconsin and the University of Washington, it was found that 27.8% of the respondents were habitual shisha smokers. Among the habitual smokers, 21.6% informed that they smoked shisha more than once a month while, the remaining 78.3% reported that they smoked shisha once or less every month (Brockman et al., 2012). A content analysis conducted on their Facebook pages indicated that 5.3% of the respondents showed shisha related positive content (Brockman et al., 2012). Meanwhile, a

qualitative content analysis conducted on Tumblr showed that, 35% of pro-shisha smoking messages were posted by youth below the age of 18 (Primack et al., 2016).

Gender preferences

On Tumblr, Primack et al. (2016) examined messages to determine gender preferences with regard to shisha smoking. It was found that 77% of pro-shisha smoking messages were produced by women, while the remaining 23% of the messages were by men (Primack et al., 2016). The same study also stated that shisha expression was higher among women (57%) than men (47%) (Primack et al., 2016). Women were also reported to post higher percentage of images that portrayed sexuality with regard to shisha smoking (26%) compared to men (10%).

Men were found to post more images of shisha devices (77%) compared to women (56%). Men also recorded slightly higher percentage of posting shisha smoking tricks (20%) compared to women (19%). In term of shisha smoking practices, Primack et al. (2016) reported that more men portrayed shisha smoking with alcohol (17%) compared to women (3%), while slightly higher percentage of women showed shisha smoking with marijuana (11%) compared to men (7%). More women were also found to portray smoking flavored shisha (9%) than men (3%) (Primack et al., 2016).

Debiasing approach

Allem et al. (2017b) attempted to identify shisha smoking sentiments on Twitter by analyzing debiased (n=591792) and biased (n=888130) messages. This was performed with the intention of emphasizing on the relevance of debiasing approach in the analysis of social media messages. Biased tweets refer to pro smoking shisha messages that are inclusive of messages from social media bots and marketing agents, while debiased tweets indicate messages that are exclusive of same.

This particular study found that, within the debiased tweets, 59.5% (n=352,116) were positive towards shisha smoking. Further analysis found that 62% (n=218,312) of the debiased tweets were categorized as being highly positive due to strong feeling expressions that include excitement, elation, pleasure, happiness, and active shisha smoking practices (Allem et al., 2017b). In comparison, only 30% (n=177,537) of the messages indicated negative feelings towards shisha smoking in the debiased tweets while the other 10.5% (n=62,139) were neither positive nor negative (Allem et al., 2017b).

Within the biased samples, only 33.8% (n=300,660) showed positive feelings towards shisha smoking, 36.5% (n=324,331) indicated negative feelings and 29.6% (n=263,139) were neither positive nor negative. In term of likelihood of joy expression towards shisha smoking, 61.3% was recorded among the unbiased tweets, while 16.4% was among the biased tweets (Allem et al., 2017b).

Theoretical rationale

We found two studies that evaluated social media messages related to shisha smoking theoretically (Guidry et al., 2016, 2017). In Guidry et al. (2017), two variables (attitude and subjective norms) in the theory of reasoned action were adopted to investigate shisha related messages on Instagram. It was found that 94.9% of the messages described shisha smoking as healthy, enjoyable. These messages also indicated positive attitude towards shisha smoking. In addition, 20% of the Instagram messages implied that, belief or perception of individuals related to shisha smoking attitude would be approved by significant peers and role models, which indicated a low level of the subjective norm based on the theory of reasoned action (Guidry et al., 2017).

In Guidry et al. (2016), the health belief model theoretical lens was adopted to examine shisha related messages on Pinterest. It was found that 2.14% (n=19) of the messages depicted knowledge related to the possibility of shisha smoking addiction, thereby, denoting a low level of perceived susceptibility variable, according to the health belief model (Guidry et al., 2016). In addition, 2% (n=16) of the messages showed awareness related to the likelihood of health risks from smoking shisha, which indicated a low level of perceived severity variable, according to the health belief model (Guidry et al., 2016). Other variables in the Health Belief Model including 'perceived benefits', 'perceived barriers' and 'perceived self-efficacy' were absent in the analyzed Pinterest messages (Guidry et al., 2016).

DISCUSSION

Shisha smoking can cause severe health related implications, comparable to other tobacco methods including cigarette (Alqahtani et al., 2019). More recently, shisha smoking also was associated with the spread of contagious diseases including the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) (Haddad et al., 2021). Unfortunately, despite the health consequences associated with it, shisha smoking rate among youth continues to be high (Shekhar & Hannah-Shmouni, 2020).

Realizing the impact of social media on youth's shisha smoking intention and behavior (Greenhow et al., 2017), this particular study was conducted to analyze the portrayal of shisha smoking on the social platforms. The systematic review conducted revealed that, in general, shisha smoking messages on social media are pro-smoking behavior. Shisha smoking was mainly depicted as a form of social activity that provides fun and relaxation. It was also portrayed as an activity that is desirable and enjoyable.

There are many videos made available on YouTube containing practical instructions to use shisha (Carroll et al., 2013). Using hashtags, shisha smoking addiction and identity were also reported on Instagram (Ben Taleb et al., 2019). Based on the sentiment analysis on Twitter, it was revealed that, intense feelings such as excitement, elation, pleasure, and happiness are connected with shisha smoking activity (Allem et al., 2017b).

At the individual level, social media is used to express shisha smoking attitude. It was found that, many university students aged 18-20 were smoking shisha and posted positive comments of their behavior on Facebook (Brockman et al., 2012). In another study on Tumblr, it was indicated that, many of the pro-smoking messages related to shisha were produced by individuals below the age of 18 (35%), while gender preferences showed that, pro-smoking messages were mainly posted by women (77%) compared to men (23%) (Primack et al., 2016). Positive portrayal of shisha smoking activity on social media was found to enhance its popularity, promotions, sales, and usage of polysubstance (Allem et al., 2017a, 2018; Ben Taleb et al., 2019; Guidry et al., 2016, 2017; Krauss et al., 2015). Related findings on social media also revealed that, shisha is consumed alongside other substances including alcohol, marijuana, and cigarettes (Allem et al., 2017a; Ben Taleb et al., 2019; Brockman et al., 2012; Grant & O'Mahoney, 2016; Krauss et al., 2015).

The positive portrayal of shisha smoking across different social media platforms such as Facebook, Twitter, Instagram, and Pinterest make the practice look less harmful than other methods of smoking (Wong et al., 2016).

Two different theoretical constructs were adopted among the studies that were reviewed. Through the lens of the theory of reasoned action, Guidry et al. (2017) investigated attitude towards shisha smoking on Instagram. In a separate study, Guidry et al. (2016) adopted the health belief model to explore shisha related content on Pinterest.

In general, there were not many anti-shisha smoking messages on social media. The highest percentage of anti-shisha smoking messages was found on Twitter (7%) (Krauss et al., 2015), while the lowest was on Instagram (0.1%) (Guidry et al., 2017). There were some messages on Instagram that pointed out on the second-hand exposure effect of shisha smoking, but these were not displayed as serious health warning (Allem et al., 2017a). Social media content that emphasizes on the health risk caused by shisha smoking was not found throughout the systematic review process.

The systematic review of the selected studies showed that, shisha smoking related messages on social media platforms seem to be interfering with public health intervention initiatives. It should also be noted that, youth are considered as the main contributors of positive shisha related messages on social media (Brockman et al., 2012; Primack et al., 2016). This is worrying because youth are avid users of social media (Ilakkuvan et al., 2019). They may influence their peers or be influenced by others' pro-shisha smoking messages on social media (Singh et al., 2017).

Taking into consideration how social media is used to positively promote shisha smoking behavior, it is necessary for the health authority to plan a more thorough social media intervention strategy with the aim of educating the public, particularly youth, on the danger associated with shisha smoking. This, according to Wong et al. (2016), can help to counter the misbelief that shisha smoking is a safer alternative to tobacco.

CONCLUSION

This present work contributed to the knowledge as it reviewed the earlier studies related to shisha on social media. However, it also has limitations which were mainly due to the lack of earlier studies being conducted in this area of research. As a result, the number of studies reviewed were limited to only 11. The selected studies, nonetheless, were rigorously selected to ensure their quality.

There is a huge knowledge gap to fill in with regard to shisha smoking on social media. Future research should consider gathering primary data from social media users to understand the implied meaning related to shisha smoking messages. It is also useful to look further into the theoretical aspect, which is crucial to the success of future public health intervention. More studies related to this topic need to be performed by also including other social media platforms including Snapchat and TikTok.

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