

Hookah Smoking: Behaviors and Beliefs among Young Consumers in the United States.

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Abstract:

Hookah smoking is growing in popularity among college-age students in the United States. Community-based, semistructured, in-depth interviews were conducted with 20 college-age individuals who had used a hookah to smoke tobacco. A structured analysis of responses was conducted and framed in terms of the health belief model's four main constructs. Although hookah smokers were aware of the potential severity of tobacco-related illnesses, they did not express a perceived susceptibility to those illnesses. To the extent that cues to action exist with respect to hookah smoking, they generally serve to promote a risky behavior that is perceived to be largely social in nature.

Keywords: hookah smoking | health belief model | tobacco consumption | youth beliefs | public health | social work

Article:

Introduction

Hookah smoking is the fastest growing trend in tobacco consumption among high school and college students in the United States (American Lung Association [ALA], 2007; Barnett et al., 2009). As a social activity, hookah smoking typically takes place in public lounges, bars, and cafes despite public smoking bans (Kelly et al., 2009). It has been estimated that from 2000 to 2004, 200 new hookah establishments were opened (Barnett et al., 2009). A 2010 study found more than 725 hookah lounges, bars, and cafes were in operation across the United States, with 43 states and the District of Columbia (Griffiths et al., 2011). The ALA (2007) reported that young adults (ages 18–24) are the target market for hookah as they are 3 times more likely to initiate a new smoking habit than older potential consumers. As young adults face life transitions, they are more likely to adopt a new smoking behavior if it is viewed as being a regular part of new social activities and norms (Ling & Glantz, 2002). Further, the health belief model (HBM) posits that if a behavior is perceived to (a) carry no negative health consequences and (b) can be successfully controlled by the individual (i.e., it is not addictive) then the activity does not pose a significant health risk (Von Ah et al., 2004).

The purpose of this article is to explore the norms and beliefs that surround the hookah-smoking phenomenon among young adults in the United States. Community-based, semistructured interviews were conducted with college students that had participated in hookah smoking activities (Morgenlander, 2009). Thompson's (1997) hermeneutical framework was used to analyze the data collected. Results are then contextualized in terms of the HBM for interpretation from a public health perspective.

The findings from this study are of interest to policy makers, health advocates, and care providers. For policy makers, the hookah smoking phenomenon represents a largely unregulated threat to public health. Moreover, the societal-borne costs of hookah use are likely to be significant if it leads to an increase in smoking prevalence in the United States. For health advocates, such as the ALA, understanding the attractions and beliefs about hookah use is a *sine qua non* for developing effective educational campaigns to reduce the incidence of smoking through this mechanism. Last, for care providers, increased awareness of the role of hookah use is important for counseling and caring for patients that partake in such health threatening practices.

We begin with a brief description of the potential impact of hookah smoking on user's health is provided. Next, the methods for conducting the study are fully explicated. The results are provided. Last, a discussion of the findings is offered, our conclusions are provided, and future research is recommended.

BACKGROUND

The hookah is a form of water pipe that is widely used throughout the Middle East. To use a hookah, flavored tobacco and charcoal are placed in an ignition chamber (i.e., the bowl). A pipe leads from the bowl into the water chamber. The smoker inhales through a hose connected to a mouthpiece that draws the smoke from the bowl through the water (note: other media such as beer, soda, or other liquids are also used to augment the taste) and delivers it to the user. As the smoker inhales, they are able to observe the flavored tobacco and charcoal glow as the temperature increases. If the water chamber is clear glass, the user can also observe the smoke moving through the water and the bubbles created. The bubbling is also an audible cue and has given rise to the nickname "hubble bubble" that only further serves to belie the health risks associated with smoking in this form (Maziak, Ward et al., 2004).

Hookah smoking has harmful effects and is likely as addictive as cigarettes with the concomitant life-threatening comorbidities like lung cancer, respiratory disease, and coronary heart failure (ALA, 2007; Maziak, Eissenberg, et al., 2004; Noonan & Kulbok, 2009). However, misperceptions about the risks of smoking tobacco through a hookah are widespread among young adults. In particular, hookah users maybe unaware of the potential health hazards associated with this behavior. Alternatively, some smokers believe that the health hazards generally associated with tobacco use are not present in the hookah form of tobacco

consumption. In fact, hookah smoking is potentially more hazardous to one's health than cigarette smoking.

In a typical 1-hour hookah smoking session, the smoker can ingest 100 to 200 times the volume of smoke inhaled in a comparable cigarette session (World Health Organization [WHO], 2005). With this volume of smoke, high concentrations of aerosol, carbon monoxide, nicotine, tar, and heavy metals are also ingested, at rates greater than that of comparable cigarette use (Knishkowsky & Amitai, 2005; Shihadeh, 2003). In addition, hookah smoking relies on charcoal to ignite the tobacco, thus introducing more harmful agents. As mentioned above, the tobacco is also flavored to reduce the user's sensitivity to the negative aspects of smoking. These substances have been shown to promote tobacco addiction and are health hazards that can lead to fatal diseases like cancer (ALA, 2007). Despite warnings from the WHO (2003, 2005, 2006, 2009) and the ALA (2007) about the dangers of any form of tobacco consumption, little published research has examined the practice, incidence, and prevalence of hookah smoking among adolescent and young adults in the United States. The topic is important because the proliferation of hookah smoking establishments is a strong indication that the use of tobacco in this form is rising in popularity.

From a public health education perspective, the most challenging aspect of this new health threat is misinformation (the relevant HBM constructs are noted in parentheses). Specifically, the beliefs that hookah smoking is less addictive than cigarettes (perceived susceptibility) and that the negative health impacts are lower or nonexistent relative to other forms of tobacco use (perceived severity) (Barnett et al., 2009). In part, this is linked to the fact that the smoke passes through water before it is ingested by the smoker (Asfar et al., 2005). The belief is that the liquid medium serves as an effective filter for harmful agents. The pleasant taste and smell of the flavored and sweetened tobacco mitigates the pungent smell and irritating mouth feel common to tobacco providing additional contraindications of any negative side effects (ALA, 2007). In this sense, the flavored hookah tobacco may be similar to the use of menthol in cigarettes to improve taste and reduce the discomfort from smoke (Levin et al., 1990). Thus, thoughts of harmful consequences (perceived severity) or addiction risks (perceived susceptibility) are perceived to be lower by many hookah smokers.

In a study of college students in Syria, the authors found that regardless of participants' smoking status (hookah smoker, cigarette smokers, and nonsmokers), all had positive attitudes toward hookah smoking and enjoyed the smell and taste, which they rated as attractive features of the practice (perceived benefits; Maziak, Eissenberg, et al., 2004). In addition, the respondents indicated that hookah smoking sessions had positive social and relaxation benefits (perceived benefits). Similar studies have not been conducted in U.S. settings to replicate the findings.

The few existing studies that have examined hookah use among young adults in the United States have relied upon surveys to examine the prevalence of the practice. Evidence exists of the growing incidence of use among high school and college-age student populations (Barnett et al.,

2009; Jamil et al., 2010; Primack et al., 2009). One finding repeated across a preponderance of studies is the commonly held, but inaccurate belief by smokers and nonsmokers alike that hookah smoking poses fewer health risks and is less addictive than cigarette use (self-efficacy with regard to the user's ability to cease the behavior). The drivers of these misconceptions are, by in large, word of mouth in the populations where the behavior is gaining popularity. The purpose of this article is to explore the norms and beliefs that surround the hookah-smoking phenomenon among young adults in the United States.

METHOD

An interview protocol and respondent identification strategy were prepared and approved by the Institutional Review Board (IRB) of a large public university. Participants were recruited using three strategies. Some were recruited as a result of the first author's observation in several hookah establishments. Some were undergraduate students from a southeastern university who self-identified as having past and/or current hookah smoking experience through the completion of a short questionnaire. Through this group, other participants were recruited through a snowball technique (Taylor & Bogdan, 1984). Sampling was purposive in that we interviewed individuals who were college age between 18 and 24. Despite the small sample size, the group was culturally and ethnically diverse comprising Mexican, Indian (Middle Eastern), White, African American, and German, and we continued our iterative sampling approach until we reached saturation of conceptual elements (Lincoln & Guba, 1985). Data was collected by conducting semistructured, in-depth interviews with 20 college-age individuals (10 men and 10 women) who self-identified as current or past hookah smokers.

Interviews were conducted in locations most comfortable for each participant, including college campuses, inside hookah establishments, and over the phone. The audiotaped conversations lasting 30 to 120 minutes in length consisted of the participants talking explicitly about their hookah experiences and their beliefs about its health risks compared to cigarettes. The first major line of inquiry explored how the participants came to have their first hookah experience and their current smoking habits. The second part of the discussion sought to identify their beliefs about the safety of tobacco smoked using the hookah apparatus versus cigarettes. Each conversation began with a broadly stated question that encouraged informants to comfortably tell the interviewer a little about themselves and their background (McCracken, 1988). The interviewer then transitioned the conversation toward the informant's first encounter with hookah smoking. As the dialogue continued, the interviewer probed to explore the conditions and occasions under which the participant engaged in hookah smoking, beliefs, and attitudes about hookah versus cigarette smoking, risks, and health outcomes. Audiotapes were transcribed verbatim, and pseudonyms were used to protect each participant's anonymity.

Data Analyses

Interpretation of the data followed Thompson's (1997) hermeneutical framework. The transcribed interviews were read and reread and with continuous movement between the data, we gained a complete understanding of each participant's hookah experience, motivation, and beliefs about the practice. Through an iterative process, we searched for patterns and differences across participants, and data that implicitly or explicitly described socializing, forms of social interaction while smoking hookah, and beliefs about the safety and risks involved were analyzed in extensive detail. Common dimensions and themes emerged that were organized reflecting the context in the data (Thompson, 1996; Thompson et al., 1990). These themes were further analyzed to determine relative similarities and differences across participants. Extant research on tobacco smoking behavior gave insight to the risks and health impact of tobacco consumption that allowed a better understanding of the dangers of hookah smoking.

Several participants who indicated current frequency in hookah smoking were asked to take photographs of the activity. Six returned pictures with description of the circumstances, which precipitated each consumption occurrence, indicated in the pictures. Details also included a description of the individuals in the pictures, and the length of smoking time for those gathered. A back-and-forth process of clarifying the specifics with each of the six participants served as a means of member checking and ensured accuracy and trustworthiness in the interpretations and the findings (Lincoln & Guba, 1985). The reoccurring themes are then mapped onto the HBM for interpretation and discussion.

RESULTS

The general belief among participants, current and past hookah smokers, is that the hookah method of smoking tobacco carries much lower risk in two important dimensions posited by the HBM. First, that hookah use poses a negligible health risk that is much lower than smoking cigarettes. The second major finding is that hookah users did not believe their exposure to the addictive agents in tobacco was sufficient to create a significant addiction risks. Excerpts from the interviews related to each topic are provided and the health beliefs and related behaviors are summarized in Table 1.

Hookah Smoke is “Cleaner” than Cigarette Smoke

The first element of hookah smoking related to the HBM is the perception that there is not a negative health consequence associated with the activity. Effectively, there is a low perceived susceptibility to the negative health outcomes typically associated with smoking. In particular, interviewees indicated that the drawing the smoke through water was an effective filtering process for removing dangerous and addictive elements like nicotine. One respondent explained this way:

I mean you filter out you know anything bad in the water first, so you don't really get any of the bad stuff like what you would get with cigarettes. I have some other friends that smoke cigarettes

and they always have to smoke, but like with hookah, you can just do it when you want to. I mean they are addicted to cigarettes, but we're not addicted to hookah. (Vanessa)

TABLE 1 Health Belief Model (HBM) Constructs and Related Behaviors		
<i>HBM Concepts</i>	<i>Beliefs</i>	<i>Behaviors</i>
Perceived susceptibility	Little or no negative health effects. Better than cigarettes. Low vulnerability to tobacco-related health risks.	Willingness to initiate a new smoking behavior.
Perceived severity	Water filtering removes harmful additives and agents from smoke prior to being ingested.	Longer smoking sessions. Higher likelihood of experimentation with tobacco mixtures and liquid filter.
Perceived benefits	Induce a relaxed and stress releasing sensation, which is a pleasant and positive attribute of hookah smoking. Positive social aspects of the group activity.	Use as a diagnostic release from stress, fatigue, or other symptoms where relaxing is prescriptively helpful.
Self-efficacy	Nonaddictive. Low frequency of use, most in social occasions. Can quit at any time.	Most respondents indicated increased hookah use in terms of session duration and frequency.

As the interviewee indicates, while she did not believe hookah smoking made an individual susceptible to potentially negative health effects, she did accurately assess the risks (i.e., perceived severity) associated with smoking in other forms including cigarettes.

A second feature of hookah smoke that leads users to perceive it being “cleaner” than cigarettes is the relatively aromatic smell. This belief was mentioned without prompting by 20% of the participants. Several participants also expressed that they believed they were smoking sweetened natural herbs mixed with a small amount of tobacco to facilitate burning. The reasoning followed that because the substance being smoked is more herb based, contaminants or carcinogenic content would be lower than that of pure tobacco found in cigarettes. As such, any remaining unhealthy or toxic elements are easily eliminated through the water filtering process. A current

cigarette smoker explained the “purified” and “cleaner” difference between the clove cigarettes he smokes and hookah smoke:

When I smoke a cigarette I feel heavy like not wanting to move or doing anything. And the smoke is really strong and it leaves a really bad taste in your mouth.... You can smoke hookah and not get that heaviness feeling I was just describing at all. It's a very clean feeling. Even though you know you are not purifying yourself, you almost feel purified afterwards. I don't care what kind of cigarette you are smoking, you definitely don't feel that way, whether it's a clove or triple nicotine cancer stick. (Jason)

The “clean” feeling or lack of “heaviness” adds to the appeal of hookah. With respect to the source of these misperceptions, the fact that smoke comes through the water filter was a common theme in the interviews.

That water is an effective means of eliminating active chemical agents is the underlying premise of the low perceived health risks and low potential for addiction beliefs. One factor reinforcing this belief is the visual feedback the hookah apparatus allows the smoker during a smoking session. In hookahs that are made from clear glass, the smoker sees the smoke entering the water bowl and bubble through the water (see Maziak, Ward, et al., 2004, for complete description of the smoke-filtering process). As the smoking session progresses, the water becomes visibly darker and the users perceive this as confirmatory evidence that water is an effective filter medium.

Hookah Smoking Does Not Lead to Tobacco Addiction

A second health belief misconception is that hookah smokers are not susceptible to addiction. In other words, smokers indicated that they were confident in their ability to moderate or quit the hookah smoking behavior (i.e., self-efficacy). As the first excerpt above described, the indication of addiction for cigarette smokers is the frequency with which they have to engage in the smoking activity. In other words, frequency of use is equated with addiction. However, nicotine dependence can result from repeated inhalation of tobacco similar to that which occurs during a hookah smoking session (Maziak, Ward, et al., 2004). Compared to cigarettes, hookah smokers can ingest higher doses of nicotine during a single session; the risk of dependence is heightened. The likelihood of dependence multiplies when the frequency of smoking takes on patterns more similar to that of cigarette smokers. For some individuals, waiting for a social occasion to smoke is not enough.

There's this one guy that's a part of the group I hang out with owns like 7 hookahs. He smokes hookah like every day probably. But I maybe do once a month when I go out. I don't just do it. But I will if everyone is like hey lets smoke hookah. Some of them will just get together and smoke, whenever. (Susan)

I mean you can just relax, and do whatever you want. It's your house. I mean if we want to sit and smoke and then leave or go do something and come back we can just do that. We don't have to ask anybody anything. (Vanessa)

A critical highlight of dependence and possible addiction is at-home and home-alone smoking sessions (Maziak, Ward, et al., 2004). Access to hookah apparatus, tobacco, charcoal, and other elements are now widely accessible to young adults through online retailers (Griffiths et al., 2011). For the growing hookah connoisseur, this open access facilitates accumulating different types of hookahs and experimenting with varied combinations of tobacco mixtures. Having the ability to smoke at any time increases the likelihood of experimentation without limitations or restrictions.

Induce Relaxation and Stress Release

A third health belief is that hookah smoking induces relaxation and relieves stress, a perceived benefit expressed by informants. Some claimed it helped them to feel relaxed, whereas others described an almost immediate sensation of calmness that is nothing short of stress relieving. As a reward after a long day, several participants elaborated that the relaxation pleasure is a positive attributes of hookah smoking. As such, desiring this relaxed feeling tends to increase smoking frequency among young adults.

Well, like the one guy who has 7, he's obsessed with it. I think people just enjoy relieving stress. And smoking hookah does that for some people. I think because it's relaxing, or it makes you relax. (Susan)

Basically we've already done it like twice this week. Now we'll do it about 3 times a week almost. We don't plan it or anything; sometimes we just get together and do it. It's more like, we know we have to study but we don't want to so we'll just get together and just relax and smoke the hookah for a while and then we do our homework. So we call our other friend, she lives next door and she'll come over and bring hers. Then we decide what flavor we want, then we just sit and talk smoke till the coal is gone then we do our homework. (Rhonda)

These descriptions of relaxation and stress release experienced while smoking suggest positive mental and physical benefits, which further facilitates the positive associations with health and low susceptibility. The “relaxation” feeling experienced may be much more sinister in its effects. Pharmacology evidence exists that smoking cigarettes produces arousal and relaxation particularly in stressful situations (Benowitz, 1986). Along this line the “relaxation” feeling described by hookah smokers may be similar to that of cigarette smokers. Studies show that “nicotine enters the brain quickly, but then brain levels decline rapidly as nicotine is distributed to other body tissues” (Benowitz, 1986, p. 23). Thus, it is possible that the relaxation feeling is an after effect of the nicotine assault on the brain of the smoker as the substance is inhaled.

DISCUSSION

Although a wealth of information on the dangers of cigarette smoking exists (Atkins et al., 2002), there is insufficient information on the effects of hookah smoking, the beliefs and attitudes held by smokers, and the subsequent outcomes of ingesting such high concentrations of toxins. The participants interviewed in this study did not appear to understand the lifetime risks associated with smoking (Song et al., 2009). Further, many held on to the trivial and anecdotal information gained through word of mouth or from online sources to justify their smoking behavior and support their beliefs about addiction, dependency, and health effects.

The lethargic feeling one may encounter with cigarettes is believed to be lessened with hookah smoking. Thus, perceived susceptibility of being adversely affected in the short or long run is low among hookah users. Hookah smoke has been found to contain heavy metals like nickel, chromium, lead, and arsenic (Shihadeh, 2003). However, the fruity, sweetened flavors mixed with the tobacco disguise the tobacco's toxicity giving the smoker the illusion of safety. With the true effects camouflaged by the strong fruity tastes and smells, combined with the extended smoking session, it is possible the nicotine sensations are normalized as the smoker's sensory receptors become desensitized.

However, studies show that some toxins cannot be filtered through water. Shihadeh (2003) found that tar and carbon monoxide compounds in hookah smoke are not water soluble and are present in higher concentrations than cigarette smoke. Further, nicotine that is present in all forms of tobacco causes addiction (WHO, 2006) and is not effectively removed through water filtering (Shihadeh, 2003). Thus, hookah smoking is an efficient and effective delivery mechanism for depositing high concentrations of nicotine into the body, which increases the risk of addiction and the attendant negative health effects arising from prolonged exposure.

The pleasing relaxed sensation is a perceived benefit of hookah smoking. Respondents indicated that they believe hookah smoking has a positive and useful purpose in addition to being a social activity engaged in with friends. Ascribing positive value to hookah smoking as a behavior sets the stage for increased use. Hookah smoking may create a postadolescent gateway to tobacco use that did not exist before. Like initiation with cigarettes, participants reported their first experience occurring during high school or within their first years of college. Peer introduction was the most significant influence in trial and continued practice. Barnett et al. (2009) concludes that the practice is not only prevalent among high school students but is becoming a gateway for tobacco experimenters looking for a social outlet. As such, hookah smoking may increase the incidence of tobacco addiction in a population older than most risk avoidance campaigns currently target.

Hookah smokers' perceived severity of the risks involved is low. As hookah smoking is often considered a prosocial activity among participants, many hold on to the belief that addiction and dependency is unlikely due to intermittent recreational use. This belief may mitigate the impact of other, positive prosocial activities that normally reduce tobacco use such as regulation of its public use (Xue et al., 2007). For example, in states where indoor smoking bans exist, it is likely

that some hookah lounges and cafes may be forced to close as authorities reevaluate the regulations. However, because smokers have unchecked and inexpensive access to hookah pipes, tobacco, and charcoal through online retailers (Griffiths et al., 2011) it is possible the closing of lounges and cafes will cause smokers to transition to at-home usage. Thus, the likelihood exists that instead of decrease in hookah smoking, usage may become imbedded in residential settings.

CONCLUSION

Public Policy Regulations

The trend of hookah smoking among young adults must be a critical issue for policy makers. With the potential health risks associated with hookah smoking and the unrestricted accessibility by young adults, policy makers need to better understand and track the phenomenon at a minimum. Regulation of tobacco products may need to explicitly include flavored and sweetened tobacco as well as herb-based mixtures that are used in hookahs. In addition, communitywide smoke-free ordinances need to be reviewed to assess their ability to regulate the use of hookahs in public places—even if the businesses are specifically designed for the activity (Prochaska et al., 2009).

More than 438,000 Americans die each year from preventable tobacco-related deaths, a toll that carries the societal-borne health care costs of over \$167 billion (ALA, 2006). Hookah smoking represents a new threat to the tobacco education and control efforts that have been developed over the past half-century. This presents an increased risk of harm for cigarette smokers, as switching to the hookah method of tobacco consumption increases the levels of nicotine and other carcinogens ingested. The health risks of hookah smoking need to be communicated to young adults and the myths around its benefits should be dispelled.

Health Advocacy Intervention

From a health advocacy standpoint, for any form of intervention to be effective, the beliefs held by hookah users must be a strong consideration (Soza-Vento & Tubman, 2004). Existing tobacco prevention programs focusing on cessation or initiation curtailment may be ineffective in appealing to young adult hookah smokers, as they associate addiction and health risks only with cigarette smoking. A coordinated and targeted campaign to inform at-risk populations about the health risks associated with hookah smoking is merited.

Higher tax rates on packaged cigarettes are causing many smokers to find other means to fulfill their addiction needs (Shelley et al., 2007). Hookah bars are a means of meeting that need and potentially avoiding the high cost of consuming taxed tobacco products. Such taxes have led to a rise in smokers rolling their own cigarettes to avoid the cost of taxation. Therefore, the prevalence of establishments where tobacco is distributed in its loose forms is likely to increase. Although this factor must be considered in understanding the prevalence of the behavior from a social standpoint, a more critical factor is the smoke-alone-at-home practice that has the potential

to explode with the growing numbers of online hookah sales outlets. With little in place to guard against purchases by underage youth, access to the products can be achieved through online payment mechanisms if the buyer is without a credit card (Griffiths et al., 2011).

IMPLICATIONS FOR CARE PROVIDERS

Health care providers are another source of smoking education that may or may not be aware of the prevalence of hookah smoking as well as the potential health risks (Brink et al., 1994; Wodarski et al., 1991). With the proliferation of hookah smoking locales as a social outlet, coupled with the harmful and addictive potential of this form of tobacco smoking, and the false beliefs users have about its effects, the need for intervention efforts is now. However, for antismoking messages and strategies to be effective in appealing to hookah smokers, we must first understand the drivers of the beliefs and attitudes held by users about hookah smoking. Messages designed to address these misconceived beliefs must include the compounding factors that makes the hookah form of tobacco smoking more risky than cigarettes. Hookah smoking is not riskless, and the presumed benefits of water filtration must be demystified. Current and potentially new hookah smokers must be educated about the cigarette equivalency factor (i.e., the equivalent volume of smoke consumed in a single hookah smoking session to the number of cigarettes). Although this study highlighted some of the beliefs held by hookah smokers, further study is warranted to assess how hookah smoking perceptions influence various groups so more targeted educational interventions can be developed (Ojeda et al., 2008).

This research employed a qualitative approach to address young adult health beliefs about hookah smoking. To complement these findings, studies using longitudinal data to explore the possibility of hookah smoking as a gateway for cigarette consumption would provide further insights into the cross-over effect of hookah smoking in creating long-term cigarette smokers. Some studies of hookah smoking behavior of young adults in Middle Eastern countries have been published, where hookah smoking is traditional part of the cultural milieu, but few exist that have explored American youth hookah consumption behavior. This study offers one step toward understanding the health beliefs held by hookah smokers. Substantial research opportunities remain for future research to further examine the new rituals of the practice and the related risks. Studies related to the mediating effects of religiosity (Wallace et al., 2007) and sexual identity (Kelly et al., 2009) may also prove enlightening.

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