

(ARCHIVED) Hookah smoking and the potential for transmission of COVID-19

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RAPID REVIEW

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Key Findings

- Hookah smoking is often done as a social activity. This may involve close contact and sharing of mouthpieces with potentially infected people, both of which increases the possibility of acquiring COVID-19.
- Transmission may also be due to inadequate cleaning of hookah devices especially the mouthpieces.
- While no reports on cases of COVID-19 transmission via hookah smoking or from exhaled smoke were identified, The World Health Organization (WHO) has suggested that shared smoking devices (shared cigarette or vaping device) may facilitate transmission of COVID-19 through exhaled smoke.
- Discouraging sharing practices and use of clean device components, in addition to standard public health measures for COVID-19 prevention can reduce these transmission risks.

Objectives and Scope

- This rapid review addresses the following question:
 - Are there any theoretical concerns regarding COVID-19 transmission related to difficulty with cleaning and disinfecting the hookah (waterpipe) apparatus between users and smoke exhalation?
 - This review did not include evidence of transmission risk of other infectious diseases through hookah smoking.

Background

- Hookah smoking involves inhaling specially flavoured tobacco or herbal smoke (generated by charcoal-heating), passed through a chilled water chamber, via a flexible hose with a mouthpiece.
- Hookah smoking is a social activity that is often done among family and friends with each session lasting approximately 20-80 minutes.¹ A disposable mouthpiece (mouth tip) may be offered for the hookah smokers to place over the fixed mouthpiece of the hookah hose when sharing the hookah.² However hookah smoking can sometimes include sharing the hookah device (including mouthpiece and hose) with other hookah smokers.²
- There is concern that hookah smoking can transmit COVID-19 through social gatherings with close physical contact and sharing of the device.
- Additionally, there is the concern that upon exhalation the COVID-19 virus suspended in respiratory droplets might attach to particles generated by hookah smoking and lead to COVID-19 transmission.

Methods

- A rapid review of the literature was executed using OVID Medline and Google Scholar with a limit to English-language results. Targeted keyword searching was done to identify relevant citations on COVID-19 and SARS-CoV-2. Search terms related to hookah/narghile/waterpipe/hubble bubbles/shisha, smoking, disease transmission, COVID-19, coronavirus, electronic cigarettes (e-cigarettes, vape pens, vaping devices) were combined in the search queries. References of included papers were checked for other relevant papers.
- Because of the limited research performed on COVID-19 transmission related to hookah smoking, analogous devices (electronic cigarettes/vaping) were included in the search terms.

Results

Hookah smoking in social gatherings and COVID-19

- The current evidence supports that the predominant route of transmission of COVID-19 is from respiratory droplets from an infected individual during close unprotected contact.³
- The WHO states, "since waterpipe (hookah) smoking is typically an activity that takes place within groups in public settings and waterpipe (hookah) use increases the risk of transmission of diseases (see "Sharing hookahs" below), it could also encourage the transmission of COVID-19 in social gatherings".⁴ This is especially true in poorly ventilated indoor spaces, and where masks are not used or temporarily removed.³

Sharing hookahs

 Respiratory secretions expelled by infected individuals (as during hookah smoking) can contaminate inanimate surfaces and objects (referred to as fomites).³ Viable SARS-CoV-2 virus has been variably measured on contaminated surfaces for periods ranging from hours to days, depending on the environmental conditions (including temperature and humidity) and the type of surface.⁵ Therefore, the WHO notes, transmission may occur through sharing objects contaminated with virus from an infected person.^{3,4}

- Hookah device parts, including the hose, stem, and water, constitute potential sources of
 pathogens and a number of authors suggest hookah smoking can pose the risk of transmitting
 infectious microorganisms including respiratory viruses, bacteria, fungi, and tuberculosis
 bacilli.^{2,4,6-8} Transmission is facilitated by the shared use of the mouthpiece and parts of the
 device that are handled by everyone (potential hand to mouth contact).⁷
- Moreover, hookahs tend not to be cleaned because washing and cleaning hookah parts is difficult, labor intensive and time consuming.^{9,10} This may also facilitate the transmission of infectious diseases. For example, Martinasek et al. examined evidence of bacterial contamination in hookah devices in United States hookah lounges (N = 10) and found that all devices sampled showed bacterial growth, with mouthpieces having the highest bacterial prevalence and diversity. The authors noted this reflected a lack of cleaning and sanitization standards for these devices.⁸
- No studies were identified that directly measure the relationship between individuals who shared hookahs and whether they experience an increase in risk of COVID-19 infection, nor were any studies found that sampled hookahs devices for the presence of COVID-19 virus.
- Yasri and Wiwanitkit reported on an event where 10 persons who shared a cigarette with a person with COVID-19 later tested positive while the remainder of attendees (n=4) who did not share tested negative for COVID-19.¹¹ Although close physical contact cannot be ruled out, the authors concluded that cigarettes should not be shared as a preventative measure for COVID-19. By analogy, based on the above, it can be inferred that mouthpiece sharing during hookah smoking is a plausible route of COVID-19 transmission.

Hookah smoke exhalation

 There was no evidence found in our literature search on viral contamination in the smoke exhaled by a smoker and no cases of COVID-19 transmission has been reported by this mode. A published letter was found in which the authors speculated that coronaviruses may attach to the second hand aerosol/smoke particles and may be a possible mode of transmission for the virus.¹²

COVID-19 prevention strategies

- Strategies to reduce the risk of COVID-19 associated with hookah smoking could include:^{27,9,13}
 - Discouraging hookah sharing practices by education on the potential risk of transmission of COVID-19 through shared hookah use
 - Establishing appropriate procedures and guidelines for cleaning and sanitization of reusable hookah components
 - Encouraging the use of a disposable mouth piece

- Replacement of reusable hoses with "one-time use" hoses
- Please see Alberta's <u>COVID-19 information guidance</u> for restaurants, cafes, pubs, and bars for more information on the use of hookah and water pipes.¹³
- The above is in addition to the standard public health measures for COVID-19 prevention, e.g., staying home when sick, masking for source control, physical distancing, gathering limits, frequent hand hygiene, optimized ventilation.

Conclusion

As hookahs are often used in communal environments, the act of sharing the hookah may lead to two potential risk factors; close contact and shared surfaces, both of which may increase the risk of acquiring COVID-19. Additionally, transmission also could be facilitated by poor sanitation and inadequate cleaning of hookah devices. Discouraging sharing practices and use of clean device components, in addition to standard public health measures for COVID-19 prevention can reduce these transmission risks.

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