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Brief Report

Face touching in the time of COVID-19 in Shiraz, Iran

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BACKGROUND

SARS-CoV-2 has spread rapidly affecting over 10.4 million global citizens and the easy of spread has been demonstrated by the high burden across the globe.1 Two characteristics of the virus that offers an understanding of the effectiveness for transmission are direct transmission during the presymptomatic and symptomatic period and indirect transmission from viral particles on high touch-surfaces.2,3 The principal method of community transmission has been assigned to direct exposure to respiratory droplets followed by self-inoculation of the virus into the facial mucosa after touching contaminated surfaces and fomites.4,5 The frequency of face touching behavior in the public was evaluated in Australian medical students in their first year at university over a total of 240 minutes of lectures that identified face-touching occurred on average 23 times per hour of which 11 (44%) touches involved mucosal areas of the face; mouth (36%), nose (31%), eyes (27%).7 Another study estimated the average face-touching was 16 times per hour in 10 students observed performing office work.8

The public have been advised to protect themselves from COVID-19 with physical distancing, hand hygiene and refraining from face-touching. The aim of our study was to establish the frequency of face-touching behavior by the public after quarantine restrictions were lifted in Shiraz, Iran.

METHODS

Study design and participants

The Iranian government commenced lifting quarantine restrictions from April 20, 2020 and observations of face touching in the general community was conducted between April 22 and May 9, 2020. The average number of touches to the mucosal zone was calculated per hour and mask wearers (N = 568) were compared with those not wearing a mask (N = 432).

Findings: Ninety-two percent were observed touching their face at least once an hour and averaged 10 (SD 6) touches per hour. Nonmask wearers touched their face significantly more often than mask wearers (11 vs 8 times per hour, \( P < .001 \)). Nonmask wearers were 1.5 (95%CI OR 1.2-2.0) times more likely to touch their mucosal zone than mask wearers (\( P < .001 \)).

Conclusion: Face touching is a common behavior and may have a role in COVID-19 transmission in the absence of hand hygiene. Mask use decrease the frequency of touching the mucosal zone.

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elders) and gender (male, female) and whether they wore a face mask with or without gloves or none. Face touching was categorized by zone, mucosal zone included eyes, nose, mouth, and all other areas were categorized as nonmucosal. The observers used a checklist to record the number of times each observed person touched their facial zone, their mask and duration of observation. Statistical analysis

The total number of touches for mucosal and nonmucosal zones were summed and divided by the duration of observations to obtain an average number per hour. The mean and standard deviations (SD) was calculated for persons wearing a mask, with or without gloves, and no mask and tested for a significant difference using ANOVA. The likelihood of touching the mucosal zone was assessed for age, gender, glasses wearing and mask wearing using a backward stepwise regression analysis to establish odds ratio with confidence intervals (OR, 95%CI OR) with significance level was set at 5%. SPSS version 19 (IBM, United States) was used for all statistical analysis.

RESULTS

A total of 1,000 people were observed in public parks (350/1,000, 35%), banks (370/1,000, 37%), outpatient clinics (260/1,000, 26%) and bus stations (20/1,000, 2%). Just over half (530/1,000, 53%) were male and observers judged the proportion of observed persons to include 44% (440/1,000) young, 37% (370/1,000) middle-aged and 19% (190/1,000) to be older adults.

Just over half (57%, 568/1,000) wore a mask. The majority (92%) of 1,000 people observed made at least one face touch and made on averaged 10 (SD 6) touches per hour. Significantly more face touches regardless of zone were observed in persons without a mask (11 per hour, SD 6) compared with those wearing a mask (8 per hour, SD 5) (P < .001). Nonmask wearers touched their mucosal zone more frequently than mask wearer (5.5 vs 1.9 times per hour, P < .001). Nearly half (47%) of all touched by mask wearers were to the mask. Only, nonmask use was a significant predictor for touching the mucosal zone with nonmask wearers 1.5 times (95%CI OR 0.3 (95%CI OR 0.12-0.73)13 and OR 0.32 (95%CI OR 0.17-0.61).14 Evidence for the protective effectiveness of cloth and nonmedical grade masks worn by the public post SARS outbreak has been limited due to a range of design biases. Yet, public cloth mask use has become mandatory for some countries and bundled with other COVID-19 prevention strategies.15-16 The World Health Organization updated mask guidelines that clarified the use of cloth and nonmedical grade masks for protection of the public where physical distancing is unachievable, such as on public transport, and in the public and workplace.17 The construction of cloth masks now required 3 layers to improve filtration efficacy.18

Mask use may reduce transmission of serious viral infections as nonmask wearers were 1.5 times more likely to touch their mucosal zone. Mask touching was 47% of all touches made by wearers and this may be reduced with better fitting and improved breathable masks. Mask worn by health workers for more than 6 hours has been associated with mask contamination with respiratory viruses.19 But concern for the public becoming contaminated with SARS-CoV-2 on the outer surface of masks may be unsubstantiated. Of the 90 PPE, including respirators, sampled for SARS-CoV-2 from 30 health workers caring for up to 10 minutes of positive patients, all samples tested negative.20

As with any observations study there are limitations to our study. To reduce any Hawthorne effect participants were not engaged before being observed but we could not standardize the duration of observations and to compromise 15 minutes was chosen as the minimum period. This study was conducted in the first days after lifting quarantine restrictions in Iran. Although quarantine was not strictly enforced in Iran it was observed that there was a reluctance to attend public places. Therefore, the observed population may not be a true representation of Iranian society. We did not find any community data on face touching before the pandemic to compare our observations. We do not expect our results to be generalizable to the healthcare setting because of extended period of wear and type of mask required of health workers. Face touching is a complex behavior which is affected by many cognitive and emotional influences.2 We could not evaluate the factors influencing face-touching but expect COVID-19 awareness could have reduced this practice.

CONCLUSION

Masks can indirectly reduce the risk of COVID-19 through its mechanical action but also as a mechanism for preventing face touching especially 2 of the 3 mucosal areas of the face.

ETHICAL APPROVAL

Approved by Research Ethics Committee of Shiraz University of Medical Sciences

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