

Original Research Article

Attitude and adherence to COVID-19 Standard Operating Procedures (SOPs) among Malaysians

ABSTRACT

Introduction: The COVID-19 cases in Malaysia increased dramatically and every individual must comply to Standard Operating Procedures (SOPs) to prevent the high burden to health facilities. Since it has no effective treatment; nonetheless, early recognition of the disease and applying prevention strategies will help to mitigate the virus propagation. **Materials & Methods:** This study aimed to determine the attitude and adherence of COVID SOPs among Malaysians. A cross-sectional questionnaire-based study was conducted through an online and total of 206 participants from different states of Malaysia have taken part in this survey. Chi-square test and multiple logistic regression have been applied to assess the association between sociodemographic characteristics of the respondents, and attitude and adherence. **Results:** More than two thirds of the respondents had favourable attitude (70.9%; 95% CI: 64.7%, 77.1%) and good adherence to SOP (69.4%; 95% CI: 63.1%, 75.5%). The less compliance to some SOP measures like carrying hand sanitizers, avoid visiting crowded place and red zone area were noted among the respondents (< 60%). Only gender was found to have a significant association with attitude ($p=0.002$). Females were about 3 times more likely to have favourable attitude compared to males. **Conclusion:** The knowledge, attitude and practice with regard to COVID 19 SOP's were good in the studied population in comparison in the various studies conducted across the globe. Self-regulation is notably

higher in the Malaysian population with total compliance will only be possible with enforcement by the authorities

Key words: Attitude, COVID-19, adherence, SOPs, Malaysians

INTRODUCTION

Since December 2019, a novel Corona virus disease (COVID-19) began its journey around the world. COVID-19 is an emerging respiratory disease caused by severe acute respiratory syndrome corona virus. It was designated a public health emergency of international concern on 30th January 2020.¹ COVID-19 has no effective treatment; nonetheless, early recognition of the disease and applying prevention strategies will help to mitigate the virus propagation. As per World Health Organization, 186 million confirmed cases including 4 million deaths were reported till 12th July 2021.²

The COVID-19 cases in Malaysia increased dramatically and every individual must comply to Standard Operating Procedures (SOPs) to prevent the high burden to health facilities. As of June 2021, a total of 734 048 confirmed cases of COVID-19 were reported in Malaysia. The highest cases were identified in Selangor, Negeri Sembilan and Federal Territory Kuala Lumpur. Alpha, Beta and Delta variants of SARS-CoV-2 were continued to be detected among local cases.³ Ministry of Health, Malaysia also urged the public to continue adhering to the SOPs and practice the new norms to prevent disease transmission. The new norms include to avoid 3Cs and to practice 3Ws. Three Cs mean avoid **C**rowded places, **C**onfined spaces and **C**lose conversations. Three Ws mean **W**ash hands frequently, **W**earing facemasks in public areas or if symptomatic, **W**arn self and others to avoid shaking hands, practice good coughing

and sneezing etiquette, seek early treatment if symptomatic, stay home and to clean and disinfect touched surfaces in common areas.⁴

Different studies related to awareness toward COVID-19 were conducted worldwide in these days. A study done in Saudi Arabia showed high knowledge level (mean score of 17.96), optimistic attitude (mean score of 28.23) and good practice (mean score of 4.34). Male respondents in that study showed poor awareness towards the disease than females and older adults were likely to have better knowledge and practice than younger respondents.⁵ Another study that had been carried out in Hubei, China revealed that majority of the respondents (97%) had confidence to win the battle against COVID-19 and 98% of them wore masks when going out. Respondents from high socioeconomic status and women in that study were more knowledgeable about disease, optimistic and they were more compliance to COVID SOP.⁶

Based on the cross-sectional study in Malaysia, it was found that most of the participants (83%) showed positive attitudes toward COVID-19 control. Most of the respondents took proper precautions like avoiding crowds (83%), hand hygiene (87%) however wearing facemasks was less common (51%). Average knowledge score related to COVID-19 was moderate (10.5 ± 1.4) and those respondents older than 50 showed higher knowledge score.⁷ Local news also stated that visitors to the Kelantan State demonstrated poor attitude towards COVID-19 preventive measures and most of them did not willing to follow SOPs.⁸ Another study that was carried out among the general public of Turkey and Malaysia showed that gender and education were associated with overall knowledge in Turkey while age and marital status were significantly related to COVID-19 related knowledge in Malaysia. Male, married and post-graduate respondents had good attitude

towards COVID-19 in Turkey whereas females, married, those who had completed a middle-school education and postgraduates showed a good attitude towards the disease. The same study also found that adherence to SOP was better in Malaysia than Turkey.⁹

In Malaysia, in spite of strict monitoring and numerous reminders given by the Ministry, many people seem to take the SOP's for granted. Many people do not use mask and they still enjoy visiting the crowded area especially at the festive time by neglecting social distancing. It is important to spread awareness about the SOP and urge people to register for the vaccination. This study aimed to assess COVID-19 related knowledge, self-reported preventive behaviours and risk perception among Malaysians.

This study aimed to determine the attitude and adherence of COVID SOPs among Malaysians. By conducting this research it can implant the importance of the SOP's which is to prevent the spread of the infection among the public. By self-realization and they can follow the SOP's strictly. This research will not only spread good knowledge and awareness about the infection but will also create a safer and an infection free atmosphere for everyone.

METHODOLOGY

A cross-sectional questionnaire-based study was conducted through an online questionnaire (google form) from January 2021 to March 2021. Total of 206 participants have taken part in this survey. The participants were selected by convenience sampling who

consented to participate in the study. Both male and female respondents age over 18 years were eligible to take part in this survey.

The questionnaire was created based on internet and done manually. The sources obtained were from valid websites, books, and journals. The questionnaire consists of questions pertaining to the demographic characteristics of the participants, their attitude towards COVID-19 and practice of SOPs. Five-point Likert scale was given to the respondents for attitude questions, and they were asked to state their level of agreement from “strongly disagree,” “disagree,” “undecided,” “agree,” or “strongly agree.” Participants were given “yes” and “no” for the practice questions. The questionnaires for attitude and practice were composed of both positive and negative statements. It was pilot tested among a sample of 20 adults, consisting of 10 males and 10 females. The data used for the pilot study was not included in the final analysis. The Cronbach’s Alpha value obtained from this questionnaire was 0.747. The study was conducted in 2 different languages (English and Bahasa Malaysia).

In survey information sheet, the participants were briefly explained about the objectives of this study, and they were informed the importance of completing the questions precisely and honestly. They were also informed about ethical consideration including the right to withdraw from the study anytime. For any clarification, the mobile contact of two researchers were provided in the questionnaire.

Data entry, coding and analysis were done by using the statistical package for social sciences (SPSS) software version 23. Chi-square test and multiple logistic regression have been applied to assess the association between sociodemographic characteristics of the respondents, and attitude and adherence. Attitude and adherence to SOP were divided into

two categories based on total scores obtained. In this study ,those who scored $\geq 80\%$ were considered as having favourable attitude and good adherence to SOPs, whereas, those who scored less than 80% of the total score were considered to be unfavourable.

As for the ethical consideration, online informed consent was obtained before proceeding with the questionnaire. This study was conducted for learning purposes and anonymity and confidentiality were always maintained. The ethical approval has been taken (reference number FOM/SSM/2021/18) and guidelines set by Institutional Ethical Committee (FOMRHAEC) were strictly followed.

RESULTS

1.Sociodemographic background of the respondents

Altogether 206 persons included in the study. General characteristics of them including their residence are shown in Table I. Majority of the respondents were youth who were between 18 to 24 years old (70.9%), females (59.7%), singles (78.2%), students (61.7%) and those living in Penang (24.3%).

Table I. Characteristics of the respondents

No.	Variables	Frequency (n=206)	Percent
1	Age-group*		
	18-24	146	70.9
	25-39	25	12.1
	40-68	35	17.0
2	Gender		
	Male	83	40.3
	Female	123	59.7

3	Marital Status		
	Single	161	78.2
	Ever married	45	21.8
4	Employment		
	Student	127	61.7
	Otherwise	79	38.3
5	Residence (State)		
	Kedah	25	12.1
	Penang	50	24.3
	Pahang	13	6.3
	Kelantan	1	0.5
	Terengganu	1	0.5
	Selangor	25	12.1
	Wilayah Persekutuan	10	4.9
	Johor	37	18.0
	Perak	29	14.1
	Sarawak	9	4.4
	Sabah	1	0.5
	Malacca	5	2.4

*Mean age (standard deviation) was 28.3 (12.1) years.

The attitude and adherence to SOPs were analysed to identity the different levels (Figure.1). The results demonstrated that 140 out of the 206 respondents (70.9%; 95% confidence interval: 64.7%, 77.1%) had favourable attitude towards COVID-19 SOPs and 60 (29.1%) of them had unfavourable attitude towards SOPs. Out of 206 respondents, 143 (69.4% ; 95% confidence interval: 63.1%, 75.5%) showed good compliance to COVID -19 SOPs, while 63(30.6%) showed poor compliance. The attitude showed a mean of 39.9(SD=5), while the mean of COVID-19 SOP adherence was 8.3(SD=1.4).

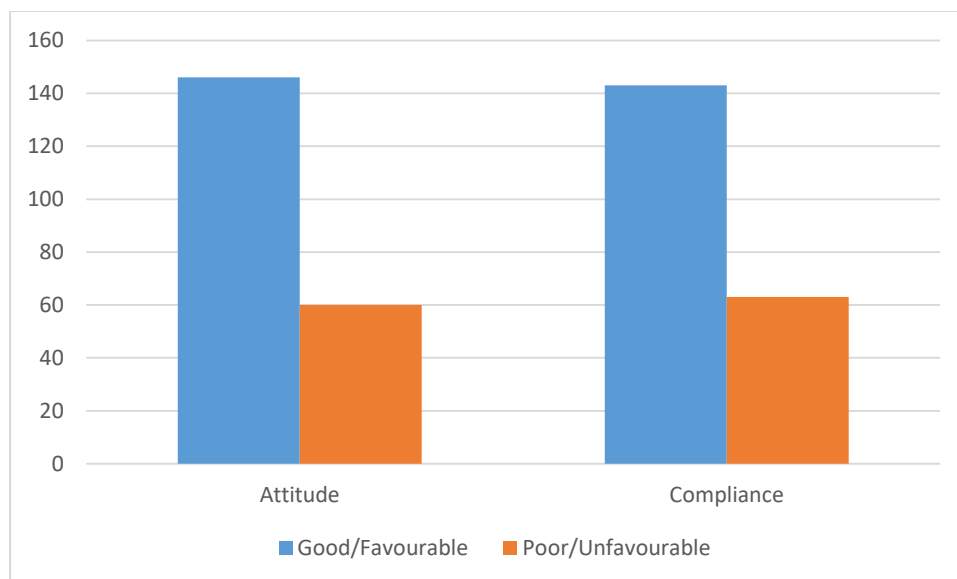


Figure 1: Different levels of attitude and adherence to COVID-19 SOPs

3. Attitude based on the background characteristics of the respondents.

The association between general characteristics of the respondents, and their attitude towards SOP are shown in Table II. Only gender was found to have a significant association with the attitude ($p = 0.002$). In this study, age, marital status, and employment did not show any statistically significant association ($p > 0.05$) with respondents' attitudes. Residence was not considered as an independent variable in the present study.

Table II. Association between characteristics of the respondents and attitude

No.	Variable	Attitude		p-value
		Favourable (%)	Unfavourable (%)	
1	Age-group			0.358
	18-24	102 (69.9)	44 (30.1)	
	25-39	16 (64.0)	9 (36.0)	
	40-68	28 (80.0)	7 (20.0)	
2	Gender			0.002**
	Male	49 (59.0)	34 (41.0)	
	Female	97 (78.9)	26 (21.1)	
3	Marital Status			0.249
	Single	111 (68.9)	50 (31.1)	

4	Ever married	35 (77.8)	10 (22.2)	0.998
	Employment			
	Student	90 (70.9)	37 (29.1)	
	Otherwise	56 (70.9)	23 (29.1)	

**p<0.001, statistically significant

Based on the findings (Figure2), almost all the respondents used face masks with 99.5% compliance. More than 80% of the respondents adhered to SOPs such as frequent washing hands, maintaining social distancing, avoiding physical contact, avoid overseas travelling, self-quarantine after showing symptoms and testing swab after they had been exposed to COVID patient. Less compliance of less than 60% were noticed among the measures like carrying hand sanitizers, avoid visiting crowded place and red zone area were noticed among the respondents.

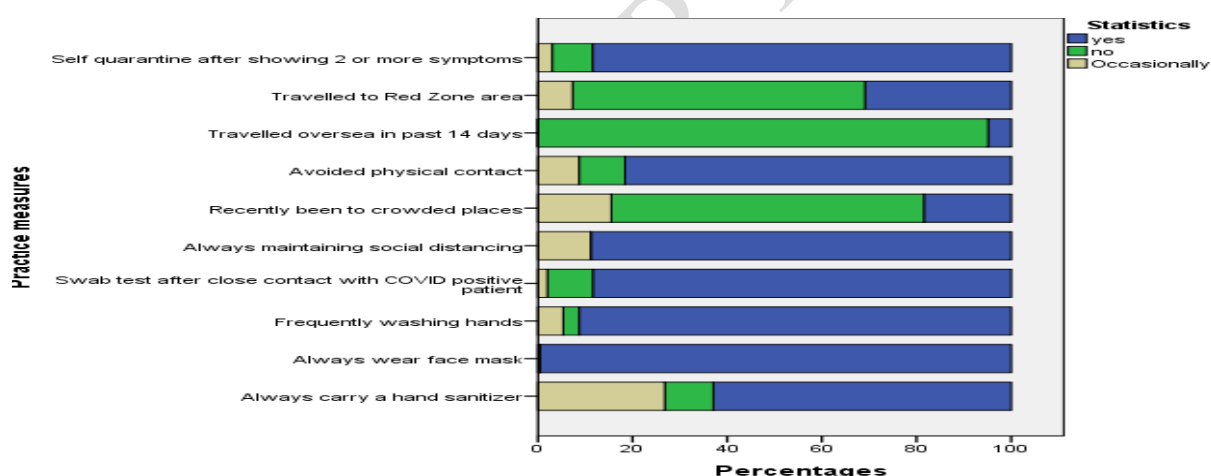


Figure 2: Practice measures toward COVID SOPs

5. Respondents' characteristics and adherence to SOPs

Respondents' background like age, gender, marital status and employment were analysed against adherence to SOPs in Table III. Findings from this study demonstrated that adherence to SOPs was not related to participants' characteristics, showing all p-values bigger than 0.05.

Table III. Association between characteristics of the respondents and adherence to SOP

No.	Variable	Adherence to SOP		p-value
		Good (%)	Poor (%)	
1	Age-group			0.194
	18-24	96 (65.8)	50 (34.2)	
	25-39	19 (76.0)	6 (24.0)	
	40-68	28 (80.0)	7 (20.0)	
2	Gender			0.155
	Male	53 (63.9)	30 (36.1)	
	Female	90 (73.2)	33 (26.8)	
3	Marital Status			0.312
	Single	109 (67.7)	52 (32.3)	
	Ever married	34 (75.6)	11 (24.4)	
4	Employment			0.109
	Student	83 (65.4)	44 (34.6)	
	Otherwise	60 (75.9)	19 (24.1)	

Multiple logistic regression analysis was done with backward deletion strategy to assess the association between characteristics of the respondents (such as age, gender, marital status and employment) and attitude towards SOP. Only gender was found to have a significant association ($p=0.002$) with adherence to SOPs. Females were about 3 times ($OR = 2.6$) more likely to have favourable attitude compared to males. However, nothing was found to be significantly associated with adherence to SOP in multiple logistic regression analysis.

In this current study, total 10 attitude related questions and 10 items for practice towards SOPs were given to the respondents and asked about their opinion. Those who scored 80% and above were considered as favourable and respondents score lower than 80% were considered as unfavourable. Chi-square test of association proved that attitude of respondents was not significantly related to their adherence to SOPs (**Table IV**).

Table IV. Association between attitude and adherence to SOP

No.	Variable	Adherence to SOP		p-value
		Good (%)	Poor (%)	

Attitude			0.907
Favourable	101 (69.2)	45 (30.8)	
Unfavourable	42 (70.0)	18 (30.0)	

DISCUSSION

Evidence has shown that public knowledge is important in combating pandemics.¹⁰ COVID-19 disease by the virtue of its high transmission rate, needs a higher rate of public compliance to reduce and control the infection rate.¹¹ Multiple studies have been conducted across the globe, highlighting attitude and perception towards COVID-19. A study conducted in Iran on 8591 participants' reports that attitude towards and practice of COVID-19 shows an overall score of 90% and 89% of the total score.¹² The result showed a significant association between female gender, higher age, and higher education with favourable attitude, and practice. Studies conducted in Jordan too have showed similar findings, with higher educational qualifications and married individuals showing better practice of COVID -19 guidelines.¹³ Though the findings do match in terms of gender, however no correlation was found between educational and marital status and practice of the COVID-19 SOP in the present study.

A study conducted in China reveals a good SOP adherence in the sample population with 76 % of the population wearing masks the correct and fair majority indulging in good practices like hand washing (56%) and most of them (75%) avoiding large gatherings and meetings.¹¹ This is comparable to the findings in our study, where the compliance was noted to be higher. A Ugandan study reported that knowledge and practice regarding face masks were satisfactory at 60 percent. 83.4%believed that a face mask can protect against COVID-19 and 75.9% disagreed to ever share their facemask which indicates good attitude and practice which was also observed in the current study.¹⁴ Authors in Singapore have concluded that

good attitude towards mask wearing has persisted even though 78.4% reported discomfort while wearing masks.¹⁵

A Korean study observed that knowledge directly affected both attitudes (e.g., perceived risk and efficacy belief) and practices (e.g., personal hygiene practices and social distancing). Belief in efficacy of the SOP's mediated the relationship between knowledge and all three preventive behaviors i.e wearing facial masks, practicing hand hygiene, and avoiding crowded places.¹⁶ A study from Bangladesh reports that a sizeable minority were observed without wearing face masks (18.2%) and a vast portion (97.5%) without any hand protection. The mean scores of KAP were 6.1 ± 2.6 (out of 17), 12.3 ± 1.7 (out of 14), and 9.8 ± 1.6 (out of 12), respectively.¹⁷ Moreover, the KAP were strongly and positively correlated with each other. An Ethiopian study conducted by Molla & Abegaz, 2021 also reports poor practice and less compliance to the COVID SOP's like social distancing with non-compliance at 66 percent.¹⁸

Similar findings were observed in terms of hand sanitizer usage (28%), but mask compliance and practise was noted to be satisfactory (63%). The study correlates good attitude and practice with educational status. Though no such correlation was observed in the current study, this phenomenon can be explained by the generally high literacy rate in Malaysia which is shown to correlate with good knowledge, attitude and practice. An Irish study reports poor hand hygiene practices in the community was poor in 82% of the studied population.¹⁹ This was contrary to the present study where hand washing compliance was high in the community at 80%. Hence studies across the globe show that compliance of COVID SOP's was variable in most population. The general rule of thumb was that better

educational qualifications, knowledge and better enforcement by the authorities ensured good compliance of COVID SOP's.

CONCLUSION

Covid 19 disease has raised havoc throughout the globe with infections ranging from asymptomatic to symptomatic severe disease requiring ventilation. Mortality has been noted to be high in the elderly and people with comorbid conditions. The major onus is not only on the government and the authorities, but also on the population practicing good compliant behaviour to the COVID SOP's like wearing face masks, social distancing, hand washing and avoiding crowded places. Studies have shown the public awareness through print, electronic and social media can ensure the knowledge flow to the entire population which can help in improving their attitude to the COVID 19 disease. But practice on ground of the COVID 19 disease though has been good in most countries, there is scope for improvement. This can be probably be enhanced by better enforcement by the health and the Police department.

REFERENCES

1. COVID-19 Public Health Emergency of International Concern (PHEIC) Global research and innovation forum [Internet]. [cited 2021 Jul 13]. Available from: [https://www.who.int/publications/m/item/covid-19-public-health-emergency-of-international-concern-\(pheic\)-global-research-and-innovation-forum](https://www.who.int/publications/m/item/covid-19-public-health-emergency-of-international-concern-(pheic)-global-research-and-innovation-forum)

2. WHO Coronavirus (COVID-19) Dashboard | WHO Coronavirus (COVID-19) Dashboard With Vaccination Data [Internet]. [cited 2021 Jul 13]. Available from: <https://covid19.who.int/>
3. Sembilan N. Malaysia. 2021;2019(June):1–6.
4. MOH. Press Statement Ministry of Health Malaysia - Updates on the Coronavirus Disease 2019 (Covid19) Situation in Malaysia [Internet]. Ministry of Health Malaysia. 2019. Available from: <http://mpoc.org.my/malaysian-palm-oil-industry/>
5. Al-Hanawi MK, Angawi K, Alshareef N, Qattan AMN, Helmy HZ, Abudawood Y, et al. Knowledge, Attitude and Practice Toward COVID-19 Among the Public in the Kingdom of Saudi Arabia: A Cross-Sectional Study. *Front Public Heal* [Internet]. 2020 May 27 [cited 2021 Jul 13];8:217. Available from: www.frontiersin.org
6. Zhong B-L, Luo W, Li H-M, Zhang Q-Q, Liu X-G, Li W-T, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *Int J Biol Sci* [Internet]. 2020 [cited 2021 Jul 13];16(10):1745. Available from: [/pmc/articles/PMC7098034/](https://pubmed.ncbi.nlm.nih.gov/32099638/)
7. Azlan AA, Hamzah MR, Sern TJ, Ayub SH, Mohamad E. Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. *PLoS One* [Internet]. 2020 May 1 [cited 2021 Jul 13];15(5):e0233668. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0233668>

8. Kelantanese rue visitors' lax attitude to Covid SOP [Internet]. [cited 2021 Jul 13]. Available from: <https://www.nst.com.my/news/nation/2020/12/652877/kelantanese-rue-visitors-lax-attitude-covid-sop>
9. Mehmet N, Ali Al-Abed AA, Enes Gökler M, Elengoe A, Ünal E, Mollahaliloğlu S. Knowledge, attitudes and practices regarding COVID-19 among the Turkish and Malaysian general populations during lockdown: A cross-sectional online survey. 2020;34(4):0–000.
10. Chirwa GC. “Who knows more, and why?” Explaining socioeconomic-related inequality in knowledge about HIV in Malawi. *Sci African*. 2020 Mar 1;7:e00213.
11. Fang Y, Liu P, Gao Q. Assessment of Knowledge, Attitude, and Practice Toward COVID-19 in China: An Online Cross-Sectional Survey. *Am J Trop Med Hyg* [Internet]. 2021 Apr 7 [cited 2021 Sep 30];104(4):1461–71. Available from: <https://www.ajtmh.org/view/journals/tpmd/104/4/article-p1461.xml>
12. Erfani A, Shahriarirad R, Ranjbar K, Mirahmadizadeh A, Moghadami M. Title: Knowledge, Attitude and Practice toward the Novel Coronavirus (COVID-19) Outbreak: A Population-Based Survey in Iran. [cited 2021 Sep 30]; Available from: <http://dx.doi.org/10.2471/BLT.20.256651>
13. Tawalbeh LI, Al-Smadi AM, Ashour A, Alshajrawi A, Gammoh O, Abu-Al-Rous N. Public knowledge, attitudes and practice about COVID-19 pandemic. *J Public Health Africa* [Internet]. 2021 Jan 29 [cited 2021 Sep 30]; Available from: <https://www.publichealthinafrica.org/index.php/jphia/article/view/1519>

14. Sikakulya FK, Ssebuufu R, Mambo SB, Pius T, Kabanyoro A, Kamahoro E, et al. Use of face masks to limit the spread of the COVID-19 among western Ugandans: Knowledge, attitude and practices. *PLoS One* [Internet]. 2021 Mar 1 [cited 2021 Sep 30];16(3):e0248706. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0248706>
15. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia. *N Engl J Med*. 2020 Mar 26;382(13):1199–207.
16. Lee M, Kang B-A, You M. Knowledge, attitudes, and practices (KAP) toward COVID-19: a cross-sectional study in South Korea. *BMC Public Heal* 2021 211 [Internet]. 2021 Feb 5 [cited 2021 Sep 30];21(1):1–10. Available from: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-10285-y>
17. Islam S, Emran GI, Rahman E, Banik R, Sikder T, Smith L, et al. Knowledge, attitudes and practices associated with the COVID-19 among slum dwellers resided in Dhaka City: a Bangladeshi interview-based survey. *J Public Health (Bangkok)* [Internet]. 2021 Apr 12 [cited 2021 Sep 30];43(1):13–25. Available from: <https://academic.oup.com/jpubhealth/article/43/1/13/5923797>
18. Molla KA, Abegaz SB. Community knowledge, attitude and practices to SARS-CoV-2 disease 2019 (COVID-19): A cross-sectional study in Woldia town, Northeast Ethiopia. *PLoS One* [Internet]. 2021 Apr 1 [cited 2021 Sep 30];16(4):e0250465. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0250465>

19. Lawson, A.; Cameron, R.; Vaganay-Miller, M. An Evaluation of the hand hygiene behaviour and compliance of the general public when using public restrooms in Northern Ireland (NI) during the initial weeks of the Novel Coronavirus (COVID-19). *Pandemic. Int. J. Environ. Res. Public Health* 2021 Jun 12 [cited 2021 Sep 30], 18(12)6385. Available from <https://www.mdpi.com/1660-4601/18/12/6385#cite>

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