

Research Article

Application of the Health Belief Model to understand behaviour related to preventing COVID-19 among adults in the Weligama MOH area, Matara district, Sri Lanka

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Abstract

Objective: The rapid spread of the COVID-19 pandemic has led the world's public health systems to face a lot of challenges. One of the main effective ways to control the spread of this disease is to break the chain of infection by adhering to preventive practices. Therefore, the objective of this study was to assess the preventive health behaviour related to COVID-19 among adults using the Health Belief Model (HBM).

Methods: A descriptive cross-sectional study was conducted during the third wave of the COVID-19 pandemic in the Weligama Medical Officer of Health area in the Matara district, Sri Lanka. A cluster sampling method was used to select 160 adults aged above 18 years. A Grama Niladari Division was considered as a cluster and a household was randomly selected from each cluster. Data on demographic characteristics, health beliefs and preventive behaviour related to COVID-19 were obtained through an interviewer administered questionnaire. Minimum and maximum of the total score in the HBM was 20 and 100 and on the preventive behaviour scale it was 38 and 190. Pearson correlation test was used to examine the relationship between subscales in the HBM and preventive behaviour.

Results: The mean age of the participants was 44.5 SD=19.72 and 56.9% (n=91) were females. Mean values for the total score of the HBM and preventive behaviour were 70.62 (SD=10.21) and 140.33 (SD=20.55) respectively. The results showed a positive and moderate relationship between the preventive behaviour and each construct of the HBM (perceived susceptibility $r=0.41$, $p < 0.001$; perceived severity $r=0.48$, $P < 0.001$; perceived benefits $r= 0.22$, $p 0.005$; perceived barrier $r= 0.23$, $p 0.004$; self-efficacy $r=0.24$, $p 0.003$; cues to action $r=0.31$, $p < 0.001$).

Conclusion - Perceived susceptibility and perceived severity showed moderate level of strength of relationship with the preventive behaviour, while all other constructs in the HBM showed very weak relationships. This emphasises that people will adopt preventive behaviour when they feel

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that they are at risk (perceived susceptibility) and when they consider that the disease has serious consequences to their health (perceived severity).

Keywords: Preventive behaviour, Health Belief Model, COVID-19, Adults, Sri Lanka

Introduction

COVID-19 has been causing a devastating effect in Sri Lanka.¹ Currently, an increased number of cases and deaths of those infected with COVID-19 are reported from all the provinces.² Vaccination against COVID-19 has begun and been implemented widely with imported vaccines.³ Nevertheless, as there has been no definitive treatment available for this disease, the only way to control spread is to break the chain of infection by adhering to preventive practices. In this context, preventive practices of the Sri Lankan population towards COVID-19 are still unknown. Given the severity of this major outbreak and the importance of prevention and protection against the spread of COVID-19, assessment of preventive behaviour and its associated factors are vital. The objective of this study was to assess the preventive health behaviour of adults during the COVID-19 pandemic using the Health Belief Model (HBM). The findings of this study will help to conduct more focused health promotion programmes to enhance preventive health behaviour towards COVID-19.

HBM is one of the most commonly used conceptual frameworks from 1950 onwards to describe the change and maintenance of health related behaviour.⁴ Previous studies in many countries have used this model to predict or explain the preventive behaviour against COVID-19.⁵⁻⁹ HBM includes six main constructs that predict why people will take action to prevent, screen or control any disease. Those are (i) perceived susceptibility (belief about the chances of experiencing a risk or getting a condition or disease) (ii) perceived severity (belief about how serious a condition and its sequelae are) (iii) perceived benefits (belief in efficacy of the advised action to reduce risk or seriousness of impact) (iv) perceived barriers (belief on the obstacles to performing a recommended health action); (v) self-efficacy (confidence in one's ability to take action) and (vi) cues to action (strategies to activate "readiness").^{4, 10} As this model has shown a good reliability and validity for measuring beliefs towards COVID-19 in other countries, the present study also used the HBM to assess the preventive behaviour of adults towards COVID-19.

Methods

This was a descriptive cross-sectional study conducted at the Weligama Medical Officer of Health (MOH) area, Matara District, Sri Lanka. The present study was conducted during the third wave of COVID-19 from July to August 2021 after the people in this area experienced an area lockdown during the second wave of COVID-19. There are five Grama Niladhari divisions and 75000 people living in over 15000 households.¹¹

The sample size was calculated using the following formula.

$z = z$ value of the confidence level which is taken as 1.96 for 95% confidence level

$P =$ Estimated baseline levels of the behaviour or indicators currently being measured (0.5)

$d =$ The acceptable margin of error (width of interval is taken as 0.1)

$n = 1.96 \times 1.96 \{0.5 (1-0.5)\} / 0.1 \times 0.1$

$n = 96$

Since the cluster sampling method was used, the design effect is assumed to be 1.5 and this number multiplied by 1.5. A 10% non-response rate was added, and final sample size was 159, rounded up to 160.

All individuals over 18 years and residing in the particular house for more than 6 months were included in this study. Individuals living in the particular home for less than 6 months, foreigners and those living in the country on a temporary basis, those mentally unfit and those who were physically too frail were excluded from the study. The cluster sampling method was used to select 160 households in the Weligama MOH area. A Grama Niladari Division was considered as a cluster. A household was randomly selected from each cluster. The randomly selected house was visited as the first house. The one closest to the right side of the front door of the first house was visited next. This procedure was repeated until the required number of respondents was interviewed in each cluster. In each house visited, all eligible males and females were listed and the person to be interviewed was selected randomly using the lottery method.

Data was collected by using an interviewer administered questionnaire which was developed after a literature review. In addition, expert opinion was obtained from psychologists and specialists in community medicine to finalise the questionnaire.

The questionnaire consisted of three parts.

Part I: Demographic data (age, sex, marital status, education level, occupation)

Part II: HBM was used to assess health beliefs towards COVID-19. All the constructs in HBM adopted a 5-point Likert scale from 1 = strongly disagree to 5 = strongly agree. Number of questions in each construct was as follows: perceived susceptibility (3 items); perceived severity (4 items); perceived benefits (3 items); perceived barriers (8 items); self-efficacy (1 item); cues to action (1 item). Minimum and maximum of the total score of HBM was 20 and 100.

Part III: Preventive behaviour toward COVID-19 was assessed using 38 questions using the five-point Likert scale from 1=never to 5=always. Minimum and maximum of the total score of this scale were 38 and 190 respectively. It included eight main components and the number of items in each component was as follows: hand hygiene (5 items); social distancing (5 items); mask (3 items); gadgets/fomites (4 items); law (4 items); practices when leaving the house (5 items); practices when entering the house (6 items); other practices (5 items).

A pre-test was done in a similar population to check whether questions work as intended and are understood by the participants. Based on the results of the pre-test, a few modifications were done to finalize the questionnaire.

During data collection, a brief instruction about the study was given to the participants prior to obtaining informed consent. Privacy and the confidentiality of the participants information were maintained throughout the study. Data was collected in their own language. The interview was conducted without any disturbance to the participants while adhering to COVID-19 preventive practices.

The collected data was entered into Excel sheets and statistical analysis was performed using SPSS software Version 21. Quantitative results were reported either as mean \pm standard deviation (SD) or frequency (percentage-%). The Pearson correlation test was used to examine the relationship between subscales in the HBM and preventive behaviour.

Results

Socio-demographic characteristics of the participants

A total of 160 participants aged 19-98 years (mean 44.5; SD 19.72) were included in this study. There were 91 (56.9%) females. Seventy-four (46.3%) were married and the rest were either unmarried, widowed or separated. The majority (n-124; 76.2%) had education either up to O/Levels or above while six (3.8%) did not have formal education. More than half the participants (n-104 65.3%) were self-employed or employed in either government or private sectors.

Health Belief Model (HBM)

Cronbach alpha was calculated for the questions in HBM. It showed a good reliability as the Cronbach's alpha was 0.77. Frequency and percentages for each statement in the HBM are as follows (Table 1).

The mean, standard deviation, and 95% confidence interval of HBM constructs were calculated and those were as follows. Mean value for the total score was 70.62 (SD=10.21) (Table 2).

Preventive behaviour of COVID-19 pandemic

The Cronbach's alpha of this component was 0.88, indicating good internal consistency. Frequency and percentages for each statement in preventive behavior questionnaire are as follows (Table 3).

The mean, standard deviation, and 95% confidence interval of each component of the preventive behaviour is as follows (Table 4). Mean value of the total score was 140.33 (SD=20.55).

Table 1: Frequency and percentages for each statement in HBM

Constructs of HBM	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	n (%)	n (%)	n (%)	n (%)	n (%)
1) Perceived susceptibility					
1. I consider myself to be at risk of coronavirus	49 (30.6)	55 (34.4)	18 (11.3)	21 (13.1)	17 (10.6)
2. I am more likely to get the disease	23 (26.9)	44 (27.5)	32 (20.0)	30 (18.8)	11 (6.9)
3. I do not care about this disease and do my daily activities like before	15 (9.4)	22 (13.8)	43 (26.9)	52 (32.5)	28 (17.5)
2) Perceived severity					
4. This disease has a high mortality rate	49 (30.6)	62 (38.8)	19 (38.8)	23 (14.4)	7 (4.4)
5. This disease is not very dangerous	15 (9.4)	38 (23.8)	24 (15.0)	30 (18.8)	53 (33.1)
6. The transmission power of this disease is high	77 (48.1)	37 (23.1)	18 (11.3)	11 (6.9)	17 (10.6)
7. The news of death from COVID-19 scares me	48 (30.0)	44 (27.5)	40 (25.0)	15 (9.4)	13 (8.1)
3) Perceived barriers					
8. It is difficult to follow the instructions to prevent this disease	15 (9.4)	29 (18.1)	59 (36.9)	37 (23.1)	20 (12.5)
9. I do not have the patience to follow preventative instructions	13 (8.1)	12 (7.5)	50 (31.3)	47 (29.4)	38 (23.8)
10. It is difficult to wash hands regularly with soap and water	7 (4.4)	27 (16.9)	43 (26.9)	59 (36.9)	24 (15.0)
11. Masks are scarce in the market, and thus I do not wear a mask	4 (2.5)	11 (3.9)	27 (16.9)	62 (38.8)	56 (35.0)
12. Disinfectant gels and solutions are scarce and expensive in the market	2 (1.3)	24 (15.0)	32 (20.0)	41 (25.6)	61 (38.1)
13. Alcohol pads are scarce in the market	6 (3.8)	23 (14.4)	37 (23.1)	58 (36.3)	36 (22.5)
14. It is difficult not to touch hands, mouth, nose, and eyes	12 (7.5)	45 (28.1)	50 (31.3)	20 (12.5)	33 (20.6)
15. Staying at home to prevent the disease is difficult	16 (10.0)	29 (18.1)	53 (33.1)	45 (28.1)	17 (10.6)
4) Perceived self-efficacy					
16. I have ability to follow every preventive instruction against the disease	34 (21.3)	50 (31.3)	45 (28.1)	25 (15.6)	6 (3.8)
5) Perceived benefits					
17. This disease can be easily prevented by washing hands regularly with soap and water	32 (20.0)	67 (41.9)	28 (17.5)	12 (7.5)	21 (13.1)
18. This disease can be easily prevented by personal protective equipment such as masks and disposable gloves	30 (18.8)	58 (36.3)	44 (27.5)	17 (10.6)	11 (6.9)
19. This disease transmission can be easily prevented with a COVID-19 vaccines	36 (22.5)	46 (28.8)	49 (30.6)	14 (8.8)	15 (9.4)
6) Cues to action					
20. TV and radio information about the disease has been helpful	41 (25.6)	59 (36.9)	43 (26.9)	15 (9.4)	2 (1.3)

Table 2: Mean, standard deviation, and 95% confidence interval of the HBM dimensions

Dimension	Mean	Percentage of the mean from the maximum obtainable scores	Standard deviation	95% CI
Perceived susceptibility	10.45	69.6	2.91	10.00 – 10.90
Perceived severity	14.73	73.7	3.40	14.19 – 15.26
Perceived benefits	10.49	69.9	2.71	10.07 – 10.92
Perceived barrier	27.68	69.2	4.77	26.94 – 28.43
Self-efficacy	3.51	70.2	1.11	3.33 – 3.68
Cues to action	3.76	75.2	0.981	3.61 – 3.92
Total	70.62	70.62	10.21	69.03 – 72.21

Table 3: Frequency and percentages for each statement in preventive behaviour

Preventive Behaviour	Rarely	Occasionally	Commonly	Mostly	Always
	n (%)	n (%)	n (%)	n (%)	n (%)
1) Hand hygiene					
1. How often do you shake hands while greeting people nowadays?	77 (48.1)	24 (15.0)	23 (14.4)	10 (6.3)	26 (16.3)
2. How often do you wash/sanitize your hands with soap and water /alcohol based sanitizer?	10 (6.3)	23 (14.4)	26 (16.3)	54 (33.8)	47 (29.4)
3. How often do you ensure that you wash/sanitize your hands for at least 20 seconds?	16 (10.0)	13 (8.1)	40 (25.0)	44 (27.5)	47 (29.4)
4. How often do you ensure that you clean your hands before touching your eyes/nose/mouth?	7 (4.4)	16 (10.0)	37 (23.1)	64 (40.0)	36 (22.5)
5. How often do you ensure that you cover your face with a handkerchief/bent elbow while coughing/sneezing?	3 (19.9)	13 (8.1)	32 (20.0)	35 (21.9)	77 (48.1)
2) Physical distancing					
6. How often do you maintain a minimum distance of 1 meter at your workplace?	4 (2.5)	5 (3.1)	29 (8.1)	36 (22.5)	86 (53.8)
7. How often do you maintain a minimum distance of 1 meter while eating food with your colleagues at your workplace?	6 (3.8)	9 (5.6)	40 (25.0)	43 (26.9)	62 (38.8)
8. How often do you maintain a minimum distance of 1 meter in public spaces (eg: grocery shopping, social gatherings, etc.)?	1 (0.6)	6 (3.8)	38 (23.8)	48 (30.0)	67 (41.9)

Table 3: Frequency and percentages for each statement in preventive behaviour (cont.)

Preventive Behaviour	Rarely	Occasionally	Commonly	Mostly	Always
	n (%)	n (%)	n (%)	n (%)	n (%)
9. How often do you wear a mask while going out of home?	3 (1.9)	7 (4.4)	22 (13.8)	45 (28.1)	83 (51.9)
10. While wearing a mask, how often do you ensure that both your nose and mouth are covered?	3 (1.9)	14 (8.8)	40 (25.0)	43 (26.9)	60 (37.5)
11. How often do you wear double masks?	13 (8.1)	36 (22.5)	48 (30.0)	33 (20.6)	30 (18.8)
12. When you are at outside how often do you avoid touching your face (eyes, nose, and mouth)?	14 (8.8)	20 (12.5)	52 (32.5)	35 (21.9)	39 (24.4)
13. How often do you keep your mask properly in a separate bag/dustbin after using it?	5 (3.1)	11 (6.9)	38 (23.8)	50 (31.3)	56 (35.0)
4) Practices when using personal items					
14. How often do you clean/sanitize your personal items (e.g., purse/mobile phone, etc.) with sanitizer when you come home?	17 (10.6)	16 (10.0)	33 (20.6)	39 (24.4)	55 (34.4)
15. How often do you take precautions when buying things to avoid virus contamination?	8 (5.0)	12 (7.5)	36 (22.5)	54 (33.8)	50 (31.3)
16. How often you do not take your cell phone out of your pocket when outside unless there is an emergency?	19 (11.9)	21 (13.1)	39 (24.4)	31 (19.4)	50 (31.3)
17. How often do you not remove your glasses or wrist-watch when outside?	11 (6.9)	14 (8.8)	37 (23.1)	40 (25.0)	58 (36.3)
18. How often do you not place your belongings on surfaces you are not certain of their hygiene?	39 (24.4)	19 (11.9)	32 (20.0)	21 (13.1)	49 (30.6)

Table 3: Frequency and percentages for each statement in preventive behaviour (cont.)

Preventive Behaviour	Rarely	Occasionally	Commonly	Mostly	Always
	n (%)	n (%)	n (%)	n (%)	n (%)
5) Abiding to the rules and regulations					
19. How often do you obey government restrictions regarding COVID pandemic?	21 (13.1)	26 (16.3)	31 (19.4)	33 (20.6)	49 (30.6)
20. In case you develop symptoms of disease, will you contact hospital/helpline/authority regarding it?	21 (13.1)	19 (11.9)	35 (21.9)	39 (24.4)	46 (28.8)
21. If you come in contact with COVID positive/suspect person, would you stop going to work?	16 (10.0)	21 (13.1)	29 (18.1)	26 (16.3)	68 (42.5)
22. If you come in contact with COVID positive/suspect person, would you confine yourself to a home away from friends and family members	12 (7.5)	13 (8.1)	20 (12.5)	42 (26.3)	73 (45.6)
6) Practices when leaving the house					
23. I ask myself about the necessity, when I am leaving the house	12 (7.5)	13 (8.1)	20 (2.5)	42 (26.3)	73 (45.6)
24. I take alcohol disinfect with me	18 (11.3)	14 (8.8)	17 (10.6)	42 (26.3)	69 (43.1)
25. I do not leave the house in case I have symptoms of fever and cough	13 (8.1)	38 (23.8)	27 (16.9)	43 (56.9)	39 (24.4)
26. I leave the house wearing a mask, in case I have symptoms of fever and cough	9 (5.6)	12 (7.5)	28 (17.5)	35 (21.9)	76 (47.5)
27. How often you carry tissue papers or a piece of cloth to dry your hands once hand wash?	10 (6.3)	19 (11.9)	41 (25.6)	42 (26.3)	48 (30.0)
7) Practices when entering the house					
28. I wash my hands before taking off my clothes or do any other task	11 (6.9)	9 (5.6)	24 (15.0)	42 (26.3)	74 (46.3)
29. I dry my hands using tissue papers	24 (15.0)	28 (17.5)	22 (13.8)	40 (25.0)	46 (28.8)
30. I dispose of the tissue paper in a lidded trash can	10 (6.3)	23 (14.4)	36 (22.5)	34 (21.3)	57 (35.6)
31. I hang my clothes separately from other clothes when I enter the house	16 (10.0)	21 (13.1)	21 (13.1)	24 (15.0)	78 (48.8)
32. I wash my hands again after removing my clothes	8 (5.0)	30 (18.8)	36 (22.5)	32 (20.0)	54 (33.8)

Table 3: Frequency and percentages for each statement in preventive behaviour (cont.)

Preventive Behaviour	Rarely	Occasionally	Commonly	Mostly	Always
	n (%)	n (%)	n (%)	n (%)	n (%)
8) Other practices					
34. I DO NOT visit friends and relatives	25 (15.6)	24 (15.0)	20 (12.5)	31 (19.4)	60 (37.5)
35. I DO NOT attend birthday parties, wedding parties, or any other parties	22 (13.8)	16 (10.0)	43 (26.9)	32 (20.0)	47 (29.4)
36. I DO NOT eat out	23 (14.4)	25 (15.6)	33 (20.6)	33 (20.6)	46 (28.8)
37. How often you use public transportation?	86 (53.8)	36 (22.5)	17 (10.6)	12 (7.5)	9 (5.6)
38. How often you enter your details before entering to a shop or other public place?	20 (12.5)	12 (7.5)	46 (28.8)	27 (16.9)	55 (34.4)

Table 4: Mean, standard deviation, and 95% confidence interval of the preventive behaviour

Preventive behaviour	Mean	% of mean from maximum obtainable scores	Standard deviation	95% CI
Hand hygiene	18.69	74.76	3.59	18.13 – 19.25
Physical distancing	12.22	81.47	2.34	11.85 – 12.58
Wearing a mask	18.61	74.44	3.15	18.12 – 19.10
Practices when using personal items	17.74	70.96	4.02	17.12 – 18.37
Abiding to rules and regulations	14.23	71.15	3.762	13.64 – 14.82
Practices when leaving the house	18.71	74.84	4.34	18.04 – 19.39
Practices when entering the house	22.25	74.17	4.64	21.53 – 22.97
Other practices	17.88	71.52	4.60	17.16 – 18.59
Total	140.33	73.85	20.55	137.12 – 143.54

Relationship between the preventive behaviours and different constructs of the HBM

A correlation analysis was performed to ascertain the presence, and subsequently the strength of the association between the HBM constructs and COVID–19 preventive behaviours. The results showed a statistically significant positive co-relation between the preventive behaviour and each construct of the HBM as shown in Table 5. According to Guildford criteria, the strength of the co-relation was moderate with perceived susceptibility and perceived severity and very poor with perceived benefits, perceived barriers, self-efficacy, and cues to action.

Table 5: Pearson's correlation coefficients matrix between HBM variables and preventive behaviour

	Perceived susceptibility	Perceived severity	Perceived benefits	Perceived barrier	Self-efficacy	Cues to action
Preventive behaviour	r = 0.41 p = <0.001*	r = 0.48 p = <0.001*	r = 0.22 p = 0.005*	r = 0.23 p = 0.004*	r = 0.24 p = 0.003*	r = 0.31 p = <0.001*

*Correlation is significant at the 0.05 level (2-tailed)

Discussion

This study assessed the relationship between health beliefs and preventive behaviour related to COVID-19 among adults in the Weligama MOH area, in Matara, Sri Lanka. The mean value for the total score of HBM was 70.62 (SD=10.21). Of the five main subscales, perceived barriers (69.2 %) and perceived severity (73.7%) had the lowest and highest percentage of the mean respectively from the maximum obtainable scores among different constructs of the model.

There was a positive and statistically significant correlation between preventive behaviour and all constructs of the HBM. Perceived severity and perceived susceptibility had the highest positive correlation with the preventive behaviour. Nevertheless, the strength of the correlation was moderate. A similar study done in Sri Lanka using the HBM found that perceived benefits and self-efficacy subscales have a significant positive relationship with COVID-19 preventive behaviour.¹¹ Similar to this finding, a study done in Iran showed that most respondents had relatively high perceived susceptibility, perceived severity, perceived benefits, and perceived self-efficacy, but lower perceived barriers and fatalistic beliefs.⁵ Similarly a study done in the University of Macau, Macao, China found adherence to different types of precautionary measures was correlated with four HBM factors (perceived severity, perceived benefit, perceived barrier, and cue-to-action) and two generalized beliefs (social cynicism and reward for application).¹² Another study done in Korea found that while perceived severity, perceived benefit, self-efficacy were positively associated with preventive behaviour, perceived susceptibility was negatively associated with preventive behaviour among adults.¹³ Accordingly, studies done in different countries have reported that the sub scales in HBM associated differently with the preventive behaviour of adults.

In the present study, 82 (51.3%) participants either strongly agreed or agreed with the fact that COVID-19 transmission can be easily prevented through a COVID-19 vaccine. This finding is compatible with recent local study results¹⁴ and lies close to the lowest range (55%) of global survey results.¹⁵ A similar study done in Puerto Rico, USA also reported that their vaccination intent was high.¹⁶ Another similar study done in Bangladesh, found that the majority of participants (65.5%) reported a definite or probable intention to receive a COVID-19 vaccine.¹⁷ A higher proportion of COVID-19 vaccine intention has been reported in similar studies conducted in China, India, Indonesia, and Malaysia, ranging from 83.5 to 94.3%.¹⁸⁻²¹ Nevertheless, findings reported in a study done on the community's compliance with measures for the prevention of respiratory infections in Riyadh, Saudi Arabia, found a high proportion (62.8%) did not take the vaccine.²² The reason for these differences in results maybe the different time frames of the studies conducted in the respective countries. At the beginning of the pandemic, since the vaccination against COVID-19 was a new concept, vaccine acceptance among the general public was relatively low compared to the peak of the pandemic.

Nearly half of the participants in this study (84; 52.6%) reported that they could follow every preventive behaviour against COVID-19 while the rest of the participants either disagreed or strongly disagreed with this fact. However, more than half the study participants always practiced most of the preventive behaviour assessed in this study. Similar results have been found in a study done in Kuwait.^{23,24} Contrary to this finding, a study done in Jeddah, Saudi Arabia reported 62% of adults have reduced ability to adhere to every preventive behaviour.²⁵

In the present study two thirds of the population (n=100, 62.5%) had a positive response to cues to action through information obtained via television and/or radio. A global study found that social media was shown to have a negative influence and misleads people.²⁶

According to the preventive behaviour questionnaire, practices related to gadgets/fomites (71%) and social distancing (81.5%) had the lowest and highest percentage of the mean from the maximum obtainable scores respectively. Findings reported by a study done in Iran also showed that most of the respondents adopted related preventive behaviour to COVID-19 (eg: wearing face masks, stay-at-home, and avoiding unnecessary commuting).²⁷

Strength and Limitations

This study has some strengths and limitations. The use of HBM, which is a widely used model to predict preventive behaviour of adults is one of the biggest strengths in this study. The study followed a well-developed methodology throughout the study and the study instrument was developed after an extensive literature review and expert advice from psychologists and community physicians. Since the pretesting was done in a sample similar to the studied sample, this study could ensure the accuracy and understandability of the questionnaire. The higher value of the Cronbach's alfa of HBM questionnaire and preventive behaviour questionnaire ensured the reliability of the questionnaire used in this study. Another strength of this study is that it was conducted during the pandemic when all the preventive behaviours were being practiced by study participants at the time of data collection minimizing recall bias of the collected data.

Limitations of the study: As the study was conducted only among adults in the Weligama MOH area in Matara, the findings cannot be generalized to a larger population. However, by using the cluster sampling method this study ensured representation of the sample selected from the study area. As this study used a cross sectional research design, the temporal link between the outcome and the exposure cannot be determined because both were examined at the same time. Despite these limitations, the study was successful in that it sought the factors affecting preventive behaviour of adults in the Weligama MOH area.

Conclusion

More than half of the participants in this study effectively adhered to most of the preventive behaviours assessed in this study. Since the practices when using personal items such as mobile phone, wristwatch and purse had the lowest percentage of the mean from the maximum obtainable scores, measures should be taken to improve practices related to use of these items. According to the HBM, perceived susceptibility and perceived severity showed moderate level correlation with preventive behaviour, while all other constructs in the HBM showed very weak correlation. This emphasizes that the people will adopt preventive behaviours when they feel that they are at risk for the disease (perceived susceptibility) and when they consider that the disease has serious consequences to their health (perceived severity). This should therefore be taken into

account when delivering health promotion programmes to improve preventive behaviour towards infectious diseases.

Declarations

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Conflict of Interest statement: None declared

Ethics statement: Ethical approval for the study was obtained from the Ethical Review Committee, Faculty of Allied Health Sciences, and University of Peradeniya. Written permission was obtained from the Provincial Director of Health Services, Southern Province, Director, and Medical Officer of Health, Weligama, Divisional Secretariat and each Grama Niladhari Officer in Weligama MOH area

Author contributions:

MMFA: Conceptualization, Methodology, Data collection, Formal analysis, HMRKGN: Conceptualization, Methodology, Formal analysis, Writing – Original draft preparation, Reviewing and Editing.

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