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Impact of Health Beliefs on Preventative and Coping Behaviours in Sri Lankans with Chronic Illness during Covid-19

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Abstract

Non-adherence to health regulations during the Covid-19 pandemic has been associated with health beliefs. The present study investigates the impact of these health beliefs on preventative health behaviours and coping behaviours. The research followed an ex-post facto survey design and convenience sampling was used to recruit a sample of 100 Sri Lankans with chronic illnesses. Data collection was carried out online using the Health Beliefs and Preventative Behaviour questionnaire and the Brief Cope Inventory. The multiple regression analyses reveals that the regression model with health beliefs of perceived barriers, perceived self-efficacy, and cues to action was a significantly useful predictor explaining 50% of the variance in preventative health behaviours. The findings revealed no significant associations between perceived severity, susceptibility, and benefits with preventative health behaviours. Educational level and marital status moderate the relationship between self-efficacy, cues to action and preventative health behaviours. In fact, self-efficacy is positively and significantly correlated with adaptive coping but not significantly correlated with maladaptive coping behaviour. Overall, the findings highlight the utility of reducing barriers, enhancing self-efficacy, and promoting health literacy through education and provision of social support, especially spousal support, to foster adherence to preventative health behaviours.

Keywords: Coping Behaviour, Covid-19, Health Beliefs, Preventative Health Behaviour.

Introduction

Adherence to appropriate Preventative Health Behaviour (PHB), which is defined as actions taken to prevent or detect disease and seek treatment (Rosenstock, 1966) has been requested to curtail the spread of the Covid-19 pandemic. As a result, Centers for Disease Control and Prevention (UK) (2022) have recommended wearing a mask, maintaining a physical distance of six (06) feet from others,

and regular hand washing, despite being fully vaccinated. To encourage PHB, it appears imperative to understand the individual factors that determine them.

The Health Belief Model (HBM) (Rosenstock, 1966) is a theoretical model which evaluates health beliefs in terms of perceived susceptibility, severity of illness,

benefits, and barriers in implementing PHB, self-efficacy in exercising PHB, and cues to action. Perceived susceptibility refers to an individual's subjective perception of the risk of acquiring an illness or disease. Perceived severity refers to the degree to which an individual perceives the seriousness of contracting an illness or disease. Perceived benefits involve an individual's perception of the effectiveness of actions that can be taken to reduce the risk of illness or disease, or to cure the illness or disease. Perceived barriers indicate the individual's perception of the obstacles to engage in the health behaviour. Perceived self-efficacy construct denotes an individual's confidence in their ability to successfully engage in the health behaviour. Cues of action refer to the perception of the various stimuli that prompt an individual to engage in the health behaviour. Despite its utility, studies considering the complete HBM model for Covid-19-related research are few, leaving a gap in the literature.

Previous studies report mixed findings regarding the relationships between health beliefs and PHB. While some have found that perceived susceptibility and severity are significantly related to PHB (Barakat & Kasemy, 2020), other research findings have not shown a significant relationship (Arceo et al., 2021). Several studies report that perceived barriers are significantly and negatively associated with PHB (Barakat & Kasemy, 2020), whereas contrasting findings have been reported by Kim & Kim (2020). However, the perceived self-efficacy has been consistently found to be significantly and positively associated with PHB (Arceo et al., 2021). Cues to action have been found to have a significant and positive relationship

with PHB (Arceo et al., 2021). The only reported Sri Lankan study using the HBM by Mahindaratne (2021) which assesses PHB as cues to action, reveals that susceptibility and severity have no significant influence on cues to action, but self-efficacy is found to positively affect cues to action. However, the present study differs in the conceptualization of the HBM by considering cues to action as part of the model and evaluating PHB separately. Hence the study is expected to provide clarity on the relationships between the HBM and PHB within a Sri Lankan context with a sample of high-risk individuals with chronic illnesses such as asthma and diabetes.

The present study is also unique owing to the exploration of coping behaviours defined as efforts to prevent or lessen any harm, or to reduce any associated distress, and their association with the HBM construct of self-efficacy. Studies in the western context have revealed that self-efficacy predicts positive coping (Cattelino et al., 2021). The present study aims to replicate the same results in a varied cultural context to explore the impact of health beliefs on Covid-19 related preventative health behaviours and coping behaviours using the HBM.

The objectives of the study are: (i) to assess the strength of health beliefs and assess the utilization of coping behaviours, (ii) to explore the relationship between Preventative Health Behaviour and other explanatory variables and (iii) to find association between self-efficacy and coping behaviours.

Materials and Methods

Participants

Purposive random sampling was used to recruit a sample of 100 Sri Lankans with chronic illnesses from the Colombo and Gampaha districts during the period of September 2021 and March 2022. The sample constituted of males (53%), females (46%) and one percent (1%) who preferred to not state gender. The sample data represented five age groups (in years) 18-25, 26-35, 36-45, 46-55, and 56 & above, and four groups based on marital status as unmarried, married, divorced, and widowed.

Most of the sample was between the ages of 26 and 35 (31%), married (66%), and had completed their education up to their Advanced Levels (46%). Twenty six percent (26%) were from Colombo and seventy-four percent (74%) were from Gampaha district. The most reported chronic illness is asthma (36%) followed by diabetes (18%).

Data

A demographic questionnaire was administered to the participants to gather information on their age, gender, nationality, residential district, duration of residence in the country, marital status, educational level, and type of chronic illness. The health beliefs and preventative behaviour questionnaire developed by Barakat and Kasemy (2020) was administered to gauge the participants' health beliefs and PHB which comprised 30 test items. From the twenty-two items that measured health beliefs, the responses measuring the construct of perceived susceptibility were coded as 1 for 'no' and 2 for 'yes'. The other

test items were rated on a 5-point Likert scale (1 = "Strongly Disagree", 2 = "Disagree", 3 = "Neutral", 4 = "Agree" and 5 = "Strongly Agree"). High scores reflected greater strength of health beliefs. The responses for items assessing preventative behaviours were rated on a 5-point Likert scale (5 = "Always", 4 = "Often", 3 = "Sometimes", 2 = "Rarely", and 1 = "Never"). High scores reflected greater use of preventative behaviours.

Coping behaviours were assessed using The Brief Cope Inventory, a self-report questionnaire consisting of 28 test items which was developed by Carver (1997). Responses were rated on a 4-point Likert scale (0 = "I haven't been doing this at all", 1 = "I have been doing this a little bit", 2 = "I have been doing this a medium amount" and 3 = "I have been doing this a lot"). According to Carver (1997), coping was evaluated as Adaptive coping behaviours and Maladaptive coping behaviours.

Procedure

An ex-post factor survey design was adopted for the present study. An ex-post facto research design is a method in which groups with qualities that already exist are compared on some dependent variable. The data collection was initiated by sharing the link to the Google Form bearing the research questionnaire on the researcher's social media and the data collection process spanned between September 2021 and March 2022. Once the data was gathered, the process of analysis was initiated using the Statistical Package for Social Sciences Version 26 (SPSS).

Hypothesis

The present study hypothesizes that perceived susceptibility, severity, benefits, self-efficacy, and cues to action will positively predict PHB whereas perceived barriers will negatively predict PHB. It is also hypothesized that self-efficacy will have a significant positive association with adaptive coping and a negative association with maladaptive coping.

Statistical analysis

Results were statistically analyzed using SPSS version 26. Descriptive statistics were used to examine the strength of health beliefs and coping behaviours. The Likert scale data were transformed to continuous scale as described by Arceo et al. (2021). A series of one-way Analysis of Variance (ANOVAs) was carried out to evaluate variations of PHB and coping behaviours across the demographic factors. Multiple regression analyses were used to determine the predictors of PHB from the five constructs of the HBM. The correlation analysis was carried out to find the association between variables within health beliefs and copying behaviours.

Ethics

The study was conducted with ethical approval from the Board of Ethics of the University of West London and in adherence to the British Psychological Society Code of Ethics for internet-mediated research. Participants' anonymity was maintained by assigning a participant code and no personal data were collected during the study. Only those of legal age of 18 years and above were considered to ensure informed consent.

Results and Discussion

Descriptive statistics

In the sample, majority are of the ages of 26 and 35 years (31%), married (66%), having completed their education up to their Advanced Levels (46%) and were from Gampaha district (74%). The most reported chronic illness is asthma (36%) followed by diabetes (18%).

The useful statistics of some variables related to the health beliefs and coping behaviours are summarized in Table 1.

Table 1.

Descriptive statistics of the health beliefs and coping behaviours in the sample.

Factor	Variable	Mean	SD
Health Beliefs	Perceived Susceptibility	6.40	1.08
	Perceived Severity	16.22	2.81
	Perceived Benefits	8.08	1.94
	Perceived Barriers	21.37	6.73
	Perceived Self-Efficacy	4.17	1.09
	Cues to action	11.64	2.66
Coping Behaviours	Adaptive Coping	28.77	8.35
	Maladaptive Coping	12.73	6.46

Within health beliefs, the mean score varies from 21.37 (perceived barriers) to 4.17 (perceived self-efficacy). This implied that the predominant health belief in the sample is perceived barriers and the least strong is self-efficacy. Based on mean values it can be concluded that the adaptive coping was the most used coping behaviours.

Mean

To compare means of each variable within health beliefs and coping behaviors, one-way ANOVAs were carried out separately for each variable. The summary results of the ANOVAs are depicted in Table 2.

Table 2.
Results of analysis of variance (ANOVA).

Variable	Among age group	Among marital status	Among gender
Perceived susceptibility	Significant	Significant	Not significant
Perceived Severity	Not significant	Not significant	Not significant
Perceived Benefits	Not significant	Not significant	Not significant
Perceived Barriers	Not significant	Not significant	Not significant
Perceived Self-efficacy	Not significant	Not significant	Not significant
Cues to action	Not significant	Not significant	Significant
Adaptive Coping	Not significant	Not significant	Not Significant
Maladaptive Coping	Significant	Significant	Not Significant

The results in Table 2 reveal a significant difference of the means of maladaptive coping among marital status, ($p=0.014$) indicating the role of spousal support in effective coping. The results also reveal significant differences in maladaptive coping among age groups ($p < .01$). Also, a significant difference of the mean perceived susceptibility was found among age groups ($p < 0.05$) as well as among marital status ($p < 0.05$). The multiple pairwise comparison test, Post-hoc Tukey confirms statistically significant differences of the mean perceived susceptibility between the 18-25 years age group and 56 and above age group (mean difference= 1.02, $p=.03$) which may be explained by the older populations being more restricted to their homes which can lower their perception of susceptibility. The significant difference between the unmarried and widowed groups (mean difference= 1.61, $p=0.02$) highlights the less social support received by widowed groups in comparison

to unmarried individuals which emphasizes its role in the perception of susceptibility. A significant difference ($p < 0.05$) among gender was found only for cues to action confirming that females were more likely to use and be influenced by cues to action such as information from the internet or governmental regulations to guide preventative behaviour than males.

Correlation analysis

Perceived susceptibility and perceived severity are found not to have significant effects on PHB which support the findings of Arceo et al. (2021) and Mahindaratne (2021). Perceived benefits are found not to have significant effects on PHB. This contrasts with previous studies (Barakat & Kasemy, 2020; Mahindaratne, 2021), but the present study findings may reflect the changes in perceived benefits over time.

Multiple linear regression

Multiple regression model was developed for PHB with HBM constructs of perceived barriers, perceived self-efficacy and cues to action (Table 3). The model is significant ($R^2=0.52$, $R^2_{adj}=0.50$, $p<.001$) and it can explain 52% of the variation in PHB. Furthermore, all three explanatory variables are significant (Table 3).

Table 3.

Regression coefficients for predicting preventative health behaviour (PHB).

Variable	β	95% CI	p
(Constant)	20.92	[12.16, 29.67]	.007
Perceived Barriers	-.55	[-.74, -.36]	.000
Perceived Efficacy	1.81	[.48, 1.47]	.006
Cues to Action	.98	[.67, 2.95]	.002

($R^2 = 0.52$, $AdjR^2=0.50$, $p = 0.00$)

Of the three significant variables, the highest positive impact on PHB is from perceived efficacy followed by cues to action. A unit increase of perceived efficacy would help to increase PHB by 1.81 units when perceived barriers and cues to action were fixed confirming that enhancing self-efficacy of the public has significant positive effects on PHB which is in line with previous research findings (Kim & Kim, 2020; Mahindaratne, 2021). A unit increase of cues to action would increase PHB by .98 units when perceived efficacy and perceived barriers are fixed. This confirms that higher utilization of media and institutional messaging and social cues can increase PHB in the public. This

contrasts with previous findings by Barakat & Kasemy (2020). The current findings can be contextualized based on cultural factors such as collectivism which can influence preventative action (Lee et al., 2021). A unit of perceived barriers would decrease PHB by .55 units when other predictor variables are fixed, which corroborates with the existing research (Arceo et al., 2021; Barakat & Kasemy, 2020; Mahindaratne, 2021), whereby the increased perception of barriers led to reduced engagement in PHB.

Moderator analyses

A moderator analysis is used to determine whether the relationship between two variables depends on (is moderated by) the value of a third variable. Gender ($\Delta R^2=.09$, $\Delta F(1,96)=11.00$, $p=0.001$) educational level ($\Delta R^2=.06$, $\Delta F(1,96)=8.59$, $p=.004$), and marital status ($\Delta R^2=.04$, $\Delta F(1,96)=5.34$, $p=0.023$) are found to be significant moderators between the relationship of perceived self-efficacy and PHB. Males with higher perceived self-efficacy engaged in more PHB, which highlights the need for interventions that address self-efficacy. Furthermore, PHB increases with increased efficacy especially for the below A/L in comparison to the above A/L group. This highlights the necessity of promoting health literacy among the public. The married group increasingly engaged in PHB with increased efficacy in comparison to the other groups which emphasizes the role of spousal support and supports previous research identifying social support as key to engagement in PHB (Kim & Kim, 2020). Cues to action are found to have significant positive effects on PHB which contrasts with previous findings by Barakat & Kasemy (2020). Given

that educational level ($\Delta R^2 = .10$, $\Delta F(1,96) = 15.75$, $p = 0.000$), and marital status ($\Delta R^2 = .05$, $\Delta F(1,96) = 6.92$, $p = 0.010$) are significant moderators between the relationship of cues to action and PHB, it appears that adherence to health regulations can be increased by educating the public, and fostering family and spousal support.

Association among variables

Spearman's correlational analyses revealed that there is a significant positive association between perceived self-efficacy and adaptive coping, ($r = .21$, $p = .037$) which supports previous research findings (Cattelino et al., 2021) but no significant association is found between perceived-self-efficacy and maladaptive coping behaviour ($r = -.05$, $p = .633$). This is a novel finding since previous studies on this relationship are nearly absent.

Conclusions

The strength of the current study lies in the novelty of the findings that the HBM constructs of perceived barriers, self-efficacy, and cues to action predict PHB in those with chronic illness. Future research can overcome the limitation in the present study which does not account for the time-specific changes in health beliefs by using a longitudinal design. A qualitative study with other vulnerable populations such as those with a low socioeconomic standing may capture culture-specific factors driving health behaviour. It is imperative that health literacy is promoted alongside actions to mitigate barriers and enhance the self-efficacy of the public to engage in preventative behaviour.

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