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Young Adult's Health-Preventive Behaviors toward Coronavirus Disease 2019

Hayam Ibrahim Asfour , Nahla Hariri, Nahla Abdul-Gadir Tayyib, Fatmah Jabr Alsolami, Grace Lindsay

Prof. Hayam Ibrahim Asfour *(Corresponding Author)*
Nursing Practices Department, Faculty of Nursing
Umm Al-Qura University
Makkah, Kingdom of Saudi Arabia.
Email: hayamasfour2002@gmail.com

Dr. Nahla Hariri
Assistant Professor
Community Medicine & Primary Health Care for Pilgrims Department
Faculty of Medicine
Umm Al-Qura University, Makkah, Saudi Arabia.

Dr. Nahla Abdul-Gadir Tayyib
Associate Professor
Nursing Practices Department, Faculty of Nursing
Umm Al-Qura University
Makkah, Kingdom of Saudi Arabia.

Dr. Fatmah Jabr Alsolami
Associate Professor
Nursing Practices Department, Faculty of Nursing
Umm Al-Qura University
Makkah, Kingdom of Saudi Arabia.

Prof. Grace Lindsay
Nursing Practices Department, Faculty of Nursing
Umm Al-Qura University
Makkah, Kingdom of Saudi Arabia.

ABSTRACT

OBJECTIVE: To explore the young adult's coronavirus disease 2019 (COVID-19) health-preventive behaviors in Saudi Arabia.

METHODOLOGY: Semi-structured virtual interviews regarding health-preventive behaviors were conducted with 35 participants during the lockdown because of the pandemic. The Health Belief Model was used in the analysis and data presentation.

RESULTS: Young adults had feelings of fear, loneliness, anxiety, irritability, easy distraction, loss of concentration, and depression during the outbreak of the COVID-19 pandemic. Participants in this study were aware of the benefits of applying the health-preventive actions. The reported barriers hinder some of them from using some of the COVID-19 health-preventive steps are mainly related to social distancing and the curfew on some people. The participants reported their confidence in their COVID-19 health-preventive knowledge, and they stated that they could protect themselves and others from getting infected with COVID-19.

CONCLUSIONS: According to HBM, they strongly believe in health actions efficacy in their country and followed the COVID-19 health-preventive actions. Participants had a positive perception regarding the threat and severity of COVID-19 infection. Financial consequences of the curfew, noncompliance with the preventive actions' and lack of awareness of the importance of the health-preventive activities of some people are among the barriers to applying the COVID-19 health-preventive measures.

KEYWORDS: COVID-19, Young adult, Health promotion, Preventive Behaviors, Saudi Arabia

INTRODUCTION

Since coronavirus disease 2019 (COVID-19) was announced as a pandemic, the deaths have exceeded millions worldwide[1]. As a result, some mandatory precautionary measures were taken by governments to control the pandemic of COVID-19; therefore, a curfew was implemented in many countries, and the Jeddah Governorate, including Makkah city in Saudi Arabia, implemented a curfew and closure of universities and schools. All these COVID-19 health preventive measures impacted the Youth's health and wellbeing[2].

Health preventive behaviors are the primary strategies used by individuals for reducing and controlling the transmission of any novel aggressive infection that lacks evidence-based vaccine and treatment. The Health Belief Model (HBM) is a model used to expect health-related behaviour in terms of particular belief patterns. In the early 1950s, a social scientist developed this model to predict adaptation in people's behavior[3]. This model has two health-related behaviour components; the belief in health actions efficacy and the decision to prevent disease or get better if already ill. There are three categories to motivate people to undertake a health-related behaviour: individual perceptions, modifying factors, and the likelihood of action. All these factors influence an individual's health-related behaviour to be healthier[3-4].

Youth in the 15-34 age group is considered among the majority Saudi population[5], they are the future, and their health is a priority. COVID- 19 pandemic, increasing number of deaths and cases, curfew, and social distancing can create significant challenges to Youth's wellbeing. Studies revealed that many young adults might get sick from COVID-19 infection; their emotional, the pandemic may impact social and mental well-being[6-9]. In addition, it may affect their interaction with others and increase their anxiety and fear regarding the risk of infection[6]. Several studies conducted in Saudi Arabia revealed that young people had a greater tendency for psychological distress than others.[9-11] A study conducted by Elhessewi GMS 2021[9] reported a significant positive correlation between individuals' psychological distress and the perceived susceptibility and severity of COVID-19 infection. Another study reported the association of stress with that individuals' perception of fear of being in contact with COVID-19 positive cases or previously quarantined[12]. This study was carried out to examine young adults' COVID-19 health-preventive behaviors in Saudi Arabia using the HBM. Identifying factors affecting the implementation of health-preventive behaviors, especially among this age group, will help plan and implement effective programs to combat COVID-19 spread among Youth and the Community.

METHODOLOGY

Thirty-five participants over 18 years old were included in the study. Participant selection in the study was purposeful; we selected participants in the 15-34 age group[5] who can best inform and enhance understanding of the COVID-19 health-preventive behaviors among young adults. Participants were previously included in a research project which included 429 participants in the same age group. After completing the previous project, participants were asked if they could be contacted for other research opportunities.

We started recruiting participants once we had approval from the Faculty of Nursing, Umm Al-Qura University (March 2020), to carry out the study. At the beginning of each interview, consent was given written (by emails) and verbally to the participants. Most of the participants in the current study were female, of Saudi nationality, single, from 19 to 31 years of age, and educated. Table 1 shows the characteristics of the study participants.

TABLE I: CHARACTERISTICS OF THE STUDY PARTICIPANTS (n=35)

Socio-demographic characteristics		N (%)
Gender	Male	5 (14.28%)
	Female	30 (85.71%)
Nationality	Saudi	30 (85.71%)
	Non- Saudi	5 (14.28%)
Age in years	Less than 20	5 (14.28%)
	20- less than 30	29 (82.86%)
	30-less than 34	1 (2.86%)
Social status	Single	30 (85.71%)
	Married	5 (14.28%)
Education (degree)	Bachelor's degree	30 (85.71%)
	Diploma	2 (5.71%)
	Master	2 (5.71%)
	Doctor	1 (2.86%)

Data Collection

We used semi-structured virtual interviews, which were performed by the first author for data collection. After reviewing the relevant literature[8-11,13-15], we used a set of open-ended questions' which helped compare participants' responses. Virtual interviews are the most appropriate way to meet people during the lockdown because of the required health preventive precautions during the pandemic. The investigators constructed a set of wide-ranging open-ended questions, and an interview script was prepared to ensure consistency and standardization of the questions. We used the same manner in asking the questions in the interviews. The duration of each interview was 10–25 min.

All participants were asked about their COVID-19 health-preventive behaviors according to the HBM, which included (1) Modifying variables affecting COVID-19 health-preventive behaviors: demographic, psychosocial and structural variables. (2) Young adults' perceptions of COVID-19 threats according to the HBM. (3) The likelihood of COVID-19 preventive actions indicated the perceived benefits of applying COVID-19 health-preventive actions minus the perceived barriers to taking the recommended COVID-19 health-preventive actions. During all the interviews, notes were taken for asking the follow-up questions based on participants' responses. The participants were told they were on speakerphone, and all the participants consented to be audio-recorded. One investigator was only with them in the virtual room to keep their confidentiality and encourage the participants to talk freely. The participants' information was not used during the interview.

Data Analysis

Qualitative strategies and qualitative content analysis procedures were utilized in the data analysis. Three steps were used to make the study's content analysis: Transcription, Coding, and Content Analysis. **Transcription**: the investigators transcribed verbatim all audio-recorded interviews. Two research assistants typed all talks between the participants and the interviewer accurately. MAXQDA 2020 was used in the coding and processing of the qualitative data. Then, data were categorized and Arranged according to the applied codes for further data analysis. **Coding:** We followed Fulcher-Rood K 2018[13] practices in coding in our study as the following: we completed the initial coding for all Interviews. Then, we continued to the **Content Analysis** of all coded interview excerpts were made in detail, and then a coding schema according to HBM was prepared by the investigators (the first, second, and third) to complete the initial coding.

After constructing the coding schema (**Table II**), one transcript was selected randomly and coded by the second and third investigators. The stability and reliability of the coding scheme were more than 90%. To perform the content analysis of the current study, the following measures were implemented. An analysis team was formulated (consisting of one primary investigator and two research assistants), discussing all transcript excerpts to determine the response theme according to the HBM. Two reviews were performed on the final response themes through a peer-review strategy, and the analysis team ensured there was no bias in the analysis. To ensure the accuracy and completeness of the analysis, the fourth and the fifth investigators reviewed the corresponding transcript excerpts and the final response themes in the peer-review process.

In qualitative studies, participant accounts are validated through confirmability, Credibility, and peer review[14]. In our study, Credibility and confirmability were established through the size of the sample (large), and the analysis teams were structured logically and through data triangulation. Our study applied strategies of data source and investigator triangulation[15].

TABLE II: CODING DEFINITIONS

Coding according to the Health Belief Model (HBM)		Definition
Modifying variables affecting COVID-19 health-preventive behaviors	Psychosocial variables	Participants' words to express their opinion regarding the impact of COVID-19 life habits, relation with their peers and reference group, and the degree of their self-confidence in dealing with the threats of the COVID-19 pandemic indicate their personality.
	Structural variables	Specific participants' words give the meaning of the COVID-19 pandemic and ways of preventing COVID-19 infection.
Young adults' perceptions related to COVID-19 threats	The perceived susceptibility to getting infected with COVID-19	The participants used phrases & words to discuss the likelihood of having COVID-19 infection.
	The perceived severity of COVID-19 infection.	Examples were provided by the participants regarding the effect of COVID-19 infection and its severity.
Cues to implementing COVID-19 health-preventive actions.		Specific participants' words indicate their performance of COVID-19 health-preventive actions.
The likelihood of COVID-19 preventive actions	Perceived benefits of applying COVID-19 health-preventive actions	The participants provided reasons/rationales to explain why they implemented the recommended COVID-19 health-preventive actions.
	Perceived barriers to taking the recommended COVID-19 health-preventive actions.	The participants provided reasons/rationales to explain why they do not implement the recommended COVID-19 health-preventive actions.

RESULTS

The results are presented according to the HBM theoretical constructs. We used the participants' direct quotes and gave the participants unique ID codes represented in brackets after the quotes. The number of participants is shown to exhibit the strength or inadequacy of a response category.

Modifying variables affecting COVID-19 health-preventive behaviors according to the HBM:

The participants commonly discussed their feelings of fear, loneliness, anxiety, irritability, easy distraction, loss of concentration, and depression. (n = 30). For example, one participant in this study said, "since COVID-19, everything makes me anxious". Similarly, another participant said, "The issue that I have to stay at home alone for a long time and this is something that affects my psyche and my abilities in general, and that the holiday comes and we cannot celebrate it with the ones we love". Other responses included the following: (a) communicating with their friends most of the time through different social media, (n=25), (b) changes in their lifestyle such as disturbed the pattern of sleep and decrease physical activities, (n = 15), (c) the workload more than before because the way of education was changed describing that they had to make more efforts than before (i.e., assignments, research studies, presentations, and online exams; n = 10), (d) fear of being obese, for example, one participant in this study said: ″I am afraid of weight gain from eating, sleeping, and sitting at home". Participants (n=35) showed enough COVID-19 related Knowledge and its prevention.

Young adult perceptions related to COVID-19 threats according to the HBM:

Twenty participants reported that they could have COVID-19 infection easily. For example, one said, "I have low immunity because of pregnancy, and I fear getting infected with the virus". Fifteen participants stated that they have good immunity but are afraid of being in contact with COVID-19 positive. Regarding the perceived COVID-19 severity among young adults, seventeen participants reported that COVID-19 infection is not so severe, but its severity depends on the patients' condition. Nine participants revealed that the issue is that COVID-19 infection spreads quickly, which can increase cases number. Eleven participants said that the COVID-19 infection is more severe in the elderly and individuals with chronic disease.

There are other frequent responses; (a) fear of losing loved relatives because of COVID-19 infection; (n=31). For example, one said, "My mother's immunity is weak due to her cancer, and I fear that she may get infected with the virus". (b) increasing positive case numbers will affect the hospital's capacity and increase the number of deaths; n=10). (c) Participants reported the effect of COVID-19 on their studies and their academic achievements; n=25). (d) Other participants discussed the consequences of increasing the duration of curfew, which will affect the economy and the requirements of daily life from their point of view; n=5). For example, one of the participants said, "the financial consequences on people, especially for families whose income is based on daily wages, if it continues for a longer period", and (e) the fear of the end of life; (n=1).

The likelihood of COVID-19 health-preventive actions according to the HBM:

Most participants (n=23) stated that they implemented the recommended COVID-19 health-preventive actions. Most participants (n=25) reported that they had enough COVID-19 related knowledge and could protect themselves and others from getting infected with COVID-19 infection.

Cues to COVID-19 health-preventive actions and participant's self-efficacy:

Participants showed a high level of acceptance of the Saudi regulations related to the COVID-19 pandemic and reported that they followed the COVID-19 health-preventive

actions. Many triggers affected the participants and motivated them to apply the COVID-19 health-preventive measures, which were; (a) protection of their loved relatives from having COVID-19 infection (n=15), (b) prevention of the occurrence of new cases with COVID-19 infection (n=30), especially some of their relatives who had COVID-19 infection, had complications from the illness (n=5). They also reported their need to go out of their homes and have an everyday life when the pandemic ends (n=7).

Participants were aware of the benefits of implementing the health-preventive actions, and they stated that the pandemic could be controlled by following the health-preventive steps (n=33). Most participants (n=35) indicated that they followed the health-preventive actions to protect their loved relatives from getting infected with COVID-19. The participants reported some barriers to applying the COVID-19 health-preventive measures, which are the financial consequences of the curfew on some people (n=7); noncompliance of some people to the preventive actions (n=10); and lack of awareness of the importance the COVID-19 health-preventive measures (n=6). For example, one participant said, "Lack of awareness of the elderly who are not convinced at all and the urgency to change some social habits, this causes me anxiety and is difficult".

DISCUSSION

Modifying variables affecting COVID-19 health-preventive behaviors according to the HBM:

Young adults expressed many psychological symptoms indicating their personalities, and the COVID-19 pandemic impacted them. These reported symptoms were anxiety, irritability, easy distraction, loss of concentration, disturbed sleep, and depression. In addition, they reported that their physical activities decreased, and their workload increased. These results are similar to the findings of other studies regarding the COVID-19 outbreak[16-18]. Similar to our results, Abbas AM 2020[19] and Alsalhe TA et al.[20] stated that stressors can reduce the practice of worsening the quality of sleep and physical activity, leading to increased food intake. The participants indicated that they had enough Knowledge about COVID-19 and its prevention, which is also reported in the studies of Almofada SK et al.[21] and Alahdal H 2020[22]; however, participants' COVID- 19 knowledge was not enough in other studies[23,24].

Young adult perceptions related to COVID-19 threats according to the HBM:

Regarding the participants' **perceptions of the COVID-19 threat**, it was noted that all the participants perceived susceptibility to getting infected with COVID-19. However, participants reported that the severity of COVID-19 depends on the patients' condition and their immunity status. In addition, they expressed their opinion regarding the consequences of the quick spread of COVID-19 infection, the duration of curfew on their family/relatives, academic achievement, and the requirements of daily life. The presence of family members suffering from COVID-19 infection is associated with increased participants' anxiety levels, as reported in Cao W et al.[12] and Albagmi FM 2021[10] studies. The significant number of cases and deaths in the early period of the COVID-19 pandemic may be a reason for the participants' perceptions of the COVID-19 threat. In this age group, young adults have an increasing awareness of responsibilities to family and community. Therefore, they are concerned with the health of their loved family members and peers. They also have increased, and evolving capacity for goal setting and decision-making; questioning faith, beliefs, and meaning of life may reflect their perception and response toward the COVID-19 pandemic.

Likelihood of COVID-19 health-preventive actions according to the HBM:

Participants in this study were aware of the benefits of applying the COVID-19 health-preventive actions. Chee JCC et al.[25] and Joseph R 2021[26] agree with our results. The participants reported their abilities to protect themselves and others from getting the COVID-19 infection by following the recommended health-preventive measures. However, in our study, participants reported the presence of some barriers that hinder some of them from applying some of the COVID-19 health-preventive actions, which are mainly related to social distancing and the financial consequences of the curfew on some people. In this issue, participants reported the noncompliance of some members to the COVID-19 health-preventive actions. On the other hand, Al-Hanawi MK et al.[23] found that young adults have better COVID-19 practices than older adults. However, studies reported other barriers such as anxiety and stress of disease, lack of availability of disinfectants and masks, imposing financial costs on participants, and exhaustion from the existing conditions[27-29].

The results of this study showed that the participants have great self-confidence. They reported their confidence in their COVID-19 health-preventive knowledge. They stated that they could protect themselves and others from getting infected with COVID-19 infection, indicating their perception of competency in performing the COVID-19 health-preventive actions. These results are also reported by Alrasheedy AA 2021[30] and others[23-26]. The educational level of the participants may play an essential factor in encouraging them to follow the COVID-19 health-preventive actions. The perception of self-confidence may be related to their developmental characteristics such as having a firmer sense of independent

identity, including; increased emotional stability and self-reliance, and a deeper connection to peers, Community, and family relationships.

CONCLUSION

According to HBM, they strongly believe in health actions efficacy in their country, and they followed the COVID-19 health-preventive actions. Participants had a positive perception regarding the threat and severity of COVID-19 infection. Financial consequences of the curfew, noncompliance with the preventive actions' and lack of awareness of the importance of the health-preventive actions of some people are among the barriers to applying the COVID-19 health-preventive steps. Future studies are needed to assess the performance of health-preventive measures by observational methods. More studies are required to identify other factors affecting young adults' health-preventive behaviors. In addition, stakeholders should identify the needs and problems of young adults and consider them when planning preventive health programs.

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AUTHOR CONTRIBUTIONS

Afsour HI: conception or design of this article, involved in drafting, preparing the survey to collect analysing the data, and revising the major parts (Introduction, methodology, results and discussion) of the study.

Hariri N: Participated in drafting, revising this paper critically for important intellectual content, and final approval of the version to be submitted to a journal and to be published. participating in drafting, revising this paper critically for important intellectual content, and final approval of the version to be submitted to a journal and to be published.

Abdul-Gadir Tayyib N: Involved in drafting, preparing the survey to collect and analyse the data, revising the results of this study, participating in drafting, revising this paper critically for important intellectual content, final approval of the version to be submitted to a journal and to be published.

Alsolami FJ: Participated in drafting, revising this paper critically for important intellectual content, and final approval of the version to be submitted to a journal and to be published.

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