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Knowledge, Attitude and Practice of High School Children about Covid-19 at Jeddah, Saudi Arabia

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Abstract: **Coronavirus disease 2019 (COVID-19) is worldwide health and societal emergency respiratory disease. The aim of the study was to examine the knowledge, attitude, and practice of high school children regarding Covid 19. Design: cross-sectional design was carried out among high secondary school. Setting: The research was conducted on high school children in Jeddah, Saudi Arabia. All available students of high school children (232) were included in the study. A structured online questionnaire sheet was used to assess children knowledge, attitude, and practice about Covid 19. Results: It was illustrated that the majority of studied children aged between 16 - < 18 years old (73.30 %) and the majority of them had correct knowledge about Covid-19, social distance, mode of transmission (90.7%, 94.7% and 93.3% respectively). Half of studied sample reported that isolation of infected people is an effective way to reduce the spread of virus (50.7%). Meanwhile, the majority of studied sample had positive attitude toward avoidance of social events and practicing social distance (92%, and 92% respectively). Conclusion: it was concluded that the majority of study sample had adequate knowledge regarding Covid-19 and positive attitude towards the preventive measures. Meanwhile, there was incompetent practice toward prevention of Covid- 19. Recommendation: On-going educational programs should be implemented on a regular basis to improve quality of life and foster a positive attitude and good practice toward Covid-19 prevention.**

Keywords: **Knowledge, Attitude, Practice, Covid-19, High school children.**

1. INTRODUCTION

Covid-19 pandemic is a global health and societal emergency that necessitates the implementation of unprecedented measures to control the rapid spread of the on-going Covid-19 (1). The corona viruses have become the major pathogens of emerging respiratory disease existences that transmitted from person-to-person through droplets of saliva or nasal discharge by coughing or sneezing (2). It is manifested by a sudden onset, fever, fatigue, dry cough, myalgia, and dyspnea (3). It is reported that 10-20 % of the patients develop severe cases, which include acute respiratory distress syndrome, septic shock, difficult-to-tackle metabolic acidosis, and bleeding and coagulation dysfunction (4).

Infected persons present with mild to moderate symptoms but are able to recover without treatment (5, 6). Patients with comorbidities are more likely to be infected and more prone to serious complications, which may be associated with acute respiratory distress syndrome and cytokine storm (7). Patients with mild symptoms are hospitalized in a well-ventilated isolation room. Treatments include symptomatic management and supportive interventions such as antipyretics, oxygen administration, nutritional supplementations, and antibacterial drug administration (8). Severe and critical cases may need Intensive Care Unit (ICU) admission, high flow oxygen administration, mechanical ventilation, glucocorticoid therapy, and convalescent plasma administration (9).

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Public awareness of dealing with highly infectious respiratory diseases plays a vital role in limiting the spread of the infection (10). World Health Organization (WHO) has recommended strategies to control the pandemic, such as traffic restriction, cancellation of social events, home quarantine, and development of clinical care. In addition to management policies, laboratory capacity enhancement, surveillance strategies, infection prevention, implementation of health measures for travellers, risk communications, and community engagement (11).

Nursing management should be directed with infection prevention and control practices to provide safe, quality supportive care and education (8). Nurses interventions include history taking, triage, sample collection, drug administration as prescribed for symptomatic management such as antipyretic for fever, antibiotics for associated bacterial infection, oxygen administration to sustain Spo2 > 90% (1, 2).

Operational definitions

- **Knowledge** is a psychological result of perception and learning and reasoning
- **Attitude** is a complex mental state involving beliefs, feelings, values and dispositions to act in certain ways.
- **Practice** is the act of doing something regularly to improve the skill at doing it
- **Covid-19** is defined as an illness caused by severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2).
- **High school age** describes the expected physical, emotional, and mental abilities of children ages between 12-18 years old.

Aim of the study:

The aim of this study is to examine knowledge, attitude and practice of high school children about Covid-19.

Objectives

1. To evaluate knowledge of high secondary school children regarding Covid-19 includes mode of transmission, clinical manifestations, treatment, precautions and complications.

2. To identify attitude of high secondary school children regarding Covid-19 including social distance, hand washing, stricture measures and methods of controlling infection.

3. To identify the practice of high secondary school children toward prevention of Covid-19 infection including culture behaviour, social distance, and hand washing .

2. MATERIAL AND METHODS

Research Design: Cross sectional design was conducted to achieve the aim of the current study.

Setting:

This study was conducted at Seventh Secondary School and Thirteen High School at Jeddah, Saudi Arabia.

Sampling:

In this study a systemic random sample was used to include high school children in the above mentioned settings (232 Child).

Inclusion criteria: The inclusion criteria for sampling were:

1) High school children who are available during data collection.

Exclusion criteria:

1) High school children who didn't complete the questionnaire sheet.

Tool of data collection

One tool was used for data collection:

Tool: Pre designed validated online questionnaire sheet using Google forms was adopted from previous validated research (12). It composed of four parts:

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Part 1: Bio socio-demographic data composed of 4 questions such as age, gender, nationality and attendance of training programs about Covid-19.

Part 2: Students knowledge regarding Covid-19. It composed of 15 questions. Each question has two levels of responses as correct answer for any item will be given score of one and incorrect answer will be given a score of zero. Adequate knowledge equal to ≥ 75% of total score and < 75% - 60 % will be considered moderately adequate knowledge while < 60 % of the total score will be considered poor knowledge.

Part 3: Students attitude concerning prevention of Covid-19, it composed of 5 questions. The scoring system depend on 5-point Likert scale ranging from (strongly disagree=1), 2 (disagree=2), (uncertain=3), (agree=4) to (strongly agree=5). Favorable perception is ≥ 60% of total score and < 60% is considered unfavorable.

Part 4: Students practice toward Covid-19, it composed of 5 questions the participants will be asked to respond to the questions with yes or no. These scores were converted into a percent. Incompetent practice: < 85% of total practice score and competent practice: ≥85% of total practice score.

Ethical considerations

Local permission was obtained from IRRB and local acceptance letter from Vice Dean. Also, we obtained a permission to carry out the study from responsible authorities after explanation of the purpose of the study; it was assured that participation in the study is voluntary. Informed consent was obtained from those who accepted to take part in this study. The confidentiality of collected data was maintained.

Procedure for data collection

Fieldwork: Data collection was conducted from February to April 2021.

Assessment phase

An official permission was granted from the appropriate authoritative personnel. Potential high school children who agreed to participate in the study were interviewed through zoom meeting according to their available time. The researchers introduced their selves to the students and clarified the purpose of the study. The students were invited to fill out the questionnaire (tool1) through Google form and it took 15 minutes. The assessment phase took 3 months to complete the required data.

Data processing and analysis: Data were analyzed using the IBM Statistical Package of Social Science (SPSS) version 26. Quantitative data were presented by mean (X) and standard deviation (SD). Qualitative data were presented in the form of frequency distribution tables, number and percentage.

3. RESULTS

Figure 1: Distribution of the studied children according to their age (No= 232)

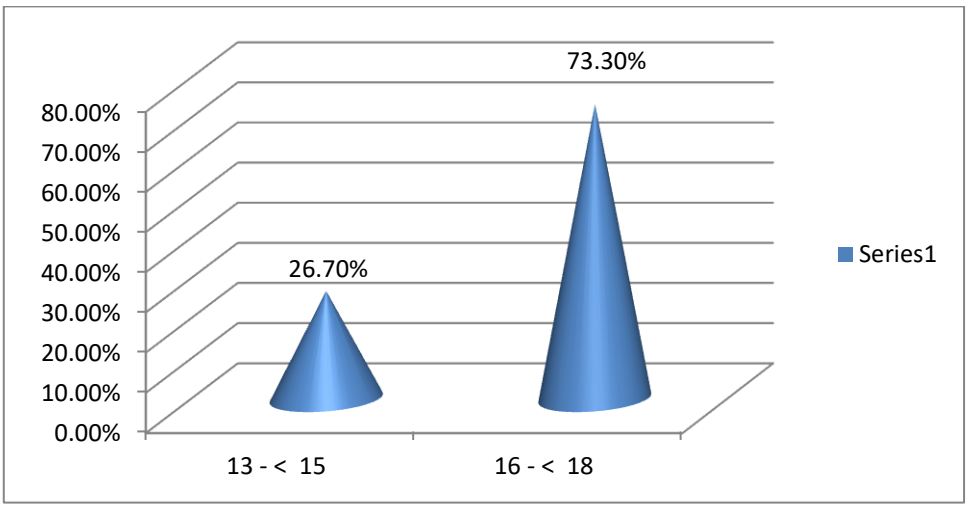

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Figure 1: displayed distribution of the studied children according to their age, it was illustrated that the majority of high school children aged between 16 - < 18 years old (73,30 %) . Though, more than one quadrant of high school children (26.70 %) are between the ages of 13 - < 15 years old.

Figure (2): Distribution of the studied children according to their gender (No= 232)

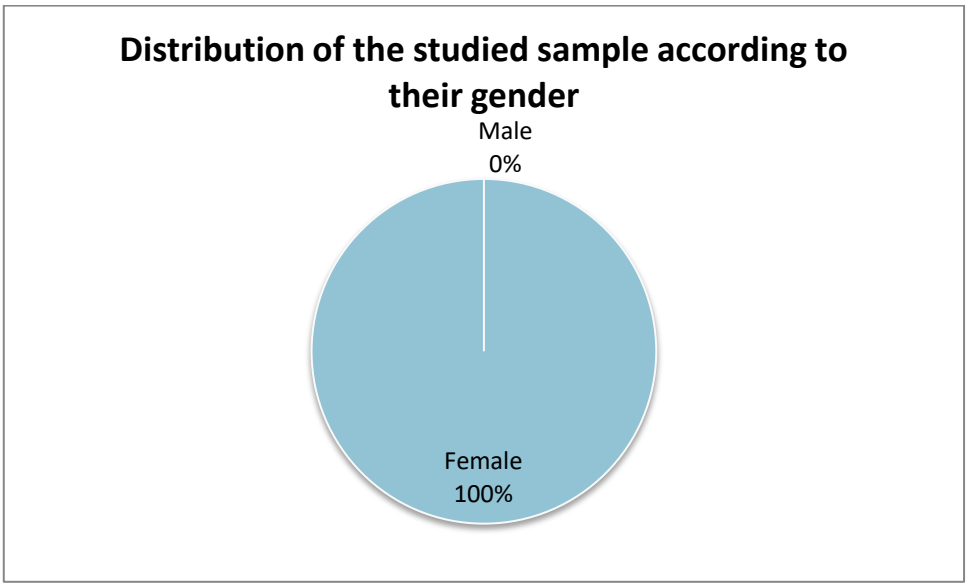

Figure 2: showed distribution of the studied children according to their gender, it was revealed that all studied sample were female (100%).

Figure (3): Previous training program regarding Covid-19 (No= 232)

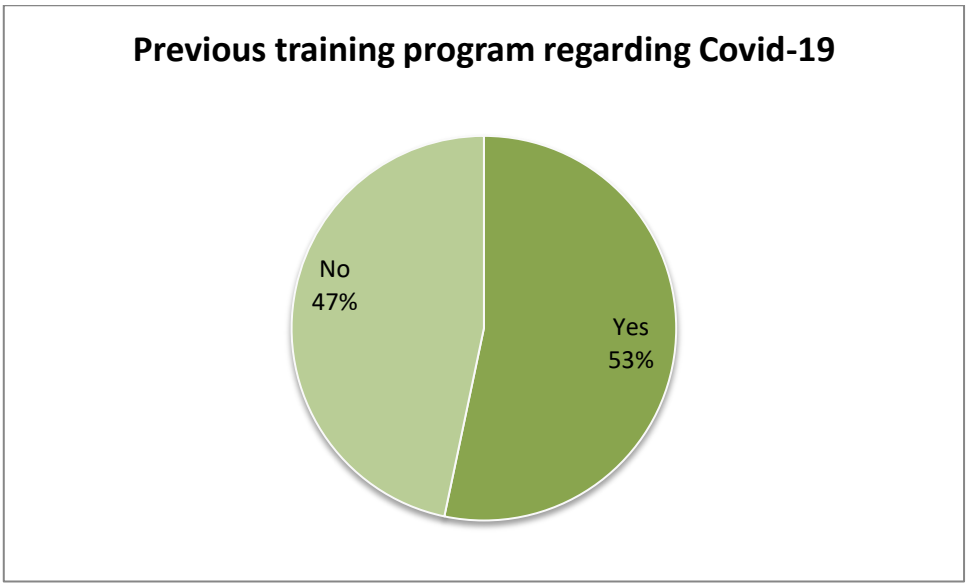

Figure 3: presented the previous training program regarding Covid-19, it was clarified that more than half of studied sample has attended previous training program (53%).

Table (1): Responses of students to knowledge regarding Covid-19 (No=232).

Statements	Correct		Incorrect	
1-Covid-19 spreads from person-to-person within close distance of each other	210	90.7%	22	9.3 %
2- Covid-19 spread through respiratory droplets, like coughing and sneezing	220	94.7.%	12	5.3 %

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3- Covid -19 can be contracted by touching a contaminated surface, and then touching one's mouth, nose, or eyes.	216	93.3%	16	6.7 %
4-Close contact or eating wild animals causes Covid -19.	127	54.7%	105	45.3%
5-People with Covid -19 cannot transmit the virus to others when a fever is not present.	189	81.3%	43	18.7%
6-The main clinical symptoms of Covid -19 are fever, fatigue, dry cough, myalgia and shortness of breath	151	65.3.%	81	34.7%
7-Antibiotics are effective treatment for Covid -19.	108	46.7%	124	53.3%
8- People with serious chronic illnesses are increased risk of developing more serious complications from Covid-19	210	90.7%	22	9.3%
9-Children appear to be at higher risk for Covid -19 than adults.	170	73.3%	62	26.7%
10-It is necessary for children to take measures to prevent Covid-19 transmission.	223	96%	9	4%
11-People should avoid touching their eyes, nose, and mouth with unwashed hands.	210	90.7%	22	9.3%
12-People should only wear a mask if they are infected with the virus, or if they are caring for someone with suspected Covid -19 infection	102	44%	130	56%
13-Isolation and treatment of people infected with the Covid-19, are effective ways to reduce the spread of virus.	118	50.7%	114	49.3%
14-People in contact with someone infected with Covid-19 should be immediately quarantined, in an appropriate location, for observational period of 14 days	204	88%	28	12%
15- To prevent transmission of Covid-19, people must avoid going to crowded places and avoid taking public transport.	216	93.3%	15	6.7%

Table 1: revealed responses of students to knowledge regarding Covid-19, it was clarified that the mean Covid-19 knowledge score was 15.6, and the overall accuracy rate for the knowledge test was 83.46%. The majority of studied sample had correct knowledge such as Covid-19 spreads from person-to-person within close distance of each other, it spread through respiratory droplets, like coughing and sneezing, it contracted by touching a contaminated surface, and through touching one's mouth, nose, or eyes (90.7%, 94.7%, 93.3%, 90.7% respectively). Also, the majority of them identified that it is necessary for children to take measures to prevent Covid-19 transmission, People should avoid touching their eyes, nose, and mouth with unwashed hands, avoid going to crowded places and public transport (96%, 90.7% and 93.3% respectively), More than half of studied sample reported that close contact or eating wild animals causes Covid -19 (54.7%). While, half of studied sample known that isolation and treatment of people infected with the Covid-19 are effective ways to reduce the spread of virus (50.7%).

Table (2) Responses of students to attitudinal statements regarding Covid-19 (No=232)

Statements	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	No	%	No	%	No	%	No	%	No	%
It is important to keep my distance from others, to avoid spreading Covid-19	176	76%	41	17.3%	9	4%	3	1.3%	3	1.3%
Washing hands is essential to protect myself from COVID-19.	176	75.9%	48	20.7%	8	3.4%	0	0.0%	0	0.0%
To protect myself from COVID-19 exposure, I should stay home if I am sick, unless I am receiving medical care.	161	69.3%	53	22.7%	15	6.7%	0	0.0	3	1.3%
COVID-19 will eventually be successfully controlled.	171	74.7%	46	20%	9	4 %	3	1.3%	3	1.3%
Compliance with the Ministry of Health precautions will prevent the spread of COVID-19.	176	75.9%	48	20.7%	8	3.4%	0	0.0%	0	0.0%

Table 2: reflected responses of students to attitudinal statements regarding Covid-19, it was revealed that the mean attitude score for Covid-19 was 31.37, and the overall favorable perception was 90% indicating positive attitudes. The majority of studied sample keep distance from others and washing hands to protect themselves (76%, and 75.9%

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respectively). More than two thirds of studied sample (69.3%) staying at home during pandemic period. While, 75.9% of students agreed that compliance with the Ministry of Health precautions prevent the spread of COVID-19.

Table (3) Students practice for prevention transmission of Covid-19 (No=232)

Statements	Yes		No	
Have you recently been to a social event involving a large number of people?	18	8 %	214	92%
Have you recently been to a crowded place?	40	17.3%	192	82.7%
Have you recently avoided cultural behaviours, such as shaking hands?	161	69.3%	71	30.7%
Have you been practicing social distancing?	213	92%	19	8 %
Recently, have you frequently washed hands with soap and water, for at least 40 seconds, especially after going to a public place, or after nose-blowing, coughing, or sneezing?	210	90.7%	22	9.3%

Table 3: showed students practice for prevention transmission of Covid-19, it was illustrated that the mean score for practices for Covid-19 was 4.15 and the overall practice score was 83.46% indicating incompetent practices. The majority of studied sample did not involve in social events and avoid crowded places with large number, practicing social distancing and frequently applying hand washing (92%, 82.7%, 92% and 90.7% respectively). While, 69.3% of students avoided culture behaviors like shaking hands.

4. DISCUSSION

The coronavirus disease is a highly transmittable and pathogenic viral infection caused by severe acute respiratory syndrome coronavirus. It was illustrated that, it was illustrated that the majority of high school children aged between 16 - < 18 years old (73, 30 %). Though, more than one quadrant of high school children (26.70 %) is between the ages of 13 - < 15 years old with a mean age equal to 15 and SD 2.12. This was consistent with (13) who reported that the age of participants ranges from 14 to 19 years old, with a mean age equal to 17 and SD 3.64. This was also supported by (14) who stated that the mean age of the respondents was 14.8 years. This age emphasizes the importance of delivering educational programs on pandemic numbers in order to avoid infection spread and enhance quality of life.

Regarding distribution of the studied children according to their gender, it was revealed that the entire sample was female (100%). This was opposed by (13) who claimed that 59.3% were female and 40.7% were male. Also, this was contradicted with (15) who stated that 65.5% were female vs. 34.5% were males. This result is rendered to distribution of school according to gender. Concerning the previous training program regarding Covid-19, it was clarified that more than half of studied sample has attended previous training program about Covid-19 (53%). This clarifies the importance of continuous educational programs to prevent further infection and increase awareness interventions. This finding was in line with (12) who recommended health education interventions should be directed to the vulnerable population at high risk of contracting Covid-19 to have better knowledge and practices.

Concerning responses of students to knowledge regarding Covid-19, it was clarified that the mean Covid -19 knowledge score was 15.6, and the overall accuracy rate for the knowledge test was 83.46%.This was corresponding with (12) who reported that the mean Covid -19 knowledge score was 17.96, and the overall accuracy rate for the knowledge test was 81.64%. The majority of studied sample had correct knowledge regarding Covid-19 spreads from person-to-person within close distance of each other, it spread through respiratory droplets (coughing and sneezing), as well as touching a contaminated surface or touching one's mouth, nose, or eyes (90.7%, 94.7.%, 93.3% and 90.7% respectively). This was matched with (13) who stated that students present a good level of knowledge about the clinical presentation of the disease and the modes of transmission. This result was in contrast with (16) who found lack of proper and basic knowledge regarding COVID-19. Also, this was contradicted with (17) who mentioned that there was variation in mode of transmission, where 96.5% reported that it can be transmitted by cough or sneezing while some participants also reported that it can be transmitted by infected meat (8.8%) or parenteral (23.5%). However, such variation could be attributed to the differences in study design including target population. These results may attributed to half of them attended educational program and gained awareness via television, news and media platforms, to protect themselves.

The present study revealed that the majority of students known that people with chronic illnesses are increased risk of developing more serious complications from Covid-19 (90.7%). This was corresponding with (12) who reported that 95, 25 % of studied sample reported that people with chronic illnesses are increased risk of developing more serious complications from Covid-19. The majority of studied sample known that people should avoid touching their eyes, nose, and mouth with unwashed hands, avoid going to crowded places and avoid taking public transport (96%, 90.7% and 93.3% respectively). This level of recognition may be due to effective health awareness through social media platforms to raising the public awareness about protective measures and engage the public in prevention and control measures to correct any misinformation.

More than half of studied sample reported that close contact or eating wild animals causes Covid -19 (54.7%). This was in agreement with (14) who reported that the majority of the students believed that Cocvid-19 could be transmitted through the animal source and with touching contaminated surfaces (87.1%, 75.2% respectively).This was similar with (18) who stated that 70% of participants responded by restricting consumption of poultry and other meat can prevent the spread of Covid-19. Half of studied sample known that isolation and treatment of people infected with the Covid-19, are effective ways to reduce the spread of virus (50.7%).this may attributed to health awareness directed to preventive measures and public awareness about Covid-19.

Concerning responses of students to attitudinal statements regarding Covid-19, it was revealed that the mean attitude score for Covid-19 was 31.37 and the overall favourable perception was 90 % indicating positive attitudes. This was in line with (12) who reported that the mean attitude score for Covid-19 was 28.23 indicating positive attitudes. The majority of them are strongly agreed to keep distance from others and washing hands to protect themselves (76%, and 75.9% respectively). This was corresponding with (14) who stated that more than half of the students strongly agreed to avoid contact with unhealthy people (57.4%), Also, this was corresponding with (15) who mentioned that the students had positive attitude toward the disease preventive measures and their reaction if they contracted the infection, with overall score of perception towards Covid-19 was also more than 90%. Furthermore, the frequently of students (90.7%) are practicing preventive measures like hand washing. This was in line with (13) who reported that most of students had positive attitude toward preventive measure positively including washing their hands. this was in line with (14) who reported that hand wash with soap and water (59.4%) as prevention and control of the disease These findings are in the line of other studies (19,20). In addition to (21) who indicated that adherence to hand washing rendered to health education programs delivered during the peak periods of infectious diseases transmission

Concerning students practice for preventing transmission of Covid-19, it was illustrated that the mean score of practices for Covid-19 was 4.15 and the overall practice score was 83.46 % indicating incompetent practices. The majority of study sample did not involve in social events, avoid crowded places with large numbers, practicing social distancing and frequently applying hand washing (92%, 82.7%, 92%, and 90.7% respectively). While, 69.3% of the study sample were avoided culture behaviors such as shaking hands. This was agreed with (15) who stated that 87% of them were practicing preventive measures positively. The majority of them were washing their hands with soap and water at least 20 seconds, they used tissues in case of coughing or sneezing disinfect touched objects and surface frequently, avoiding touching their faces (75.7%, 79.6%, 75% and 69.5% respectively).

Furthermore, they highly accepted staying at home during the pandemic period and avoiding close contact with suspected cases (83.1% and 90.1% respectively). This was contradicted with (14) who stated that more than one-third of the respondents strongly agreed to avoid touching eyes, nose, and mouth with unwashed hands (39.6%), practicing food safety (49.5%) and use of hand sanitizer (37.6%) for prevention and control of infection. This was contradicted with (22) who reported that a highly better practice level was observed where 96.4% of the participants avoided crowded places, 98% wore masks on leaving home. This high compliance to preventive measures was attributed to the educational program and awareness through mass media about prevention and control measures.

5. CONCLUSION

In the light of the present study, it was concluded that the majority of study sample had adequate knowledge regarding Covid-19 and positive attitude towards the preventive measures. Meanwhile, there was incompetent practice toward prevention of Covid- 19.

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6. RECOMMENDATIONS

Based on the results of this study the following recommendations are suggested:-

- On-going educational programs should be implemented on a regular basis to improve quality of life and foster a positive attitude and good practice toward Covid-19 prevention.
- Similar study can be replicated on a large sample to generalize the findings.

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