



Original Article

# Knowledge, Attitude, and Practice towards COVID-19 Among Parents or Guardians of Patient Children



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## ABSTRACT

**Background:** Knowledge, attitude, and practice (KAP) is necessary for better management of COVID-19. The study aimed to assess knowledge, attitude, and practice about COVID-19 among parents or guardians of children who referred to the pediatric clinics, until March 16, 2020, in City of Zahedan City located at southeast of Iran.

**Methods:** A researcher-made questionnaire was developed and given to the parents or guardians of illness children who referred to the Pediatric hospital of Ali Asghar to visit pediatricians. Demographic characteristics and KAP score was assessed. T-test and ANOVA tests were used for data analysis considering 0.05 as significant error.

**Results:** Of 524 participants, 60.1% were female. The mean age of participants was 32.15 (SD = 7.69). There was positive correlation between knowledge and attitude ( $r = 0.308$ ), knowledge and practice ( $r = 0.233$ ), and attitude and practice ( $r = 0.207$ ). Illiterate parents had lowest knowledge score compared to other educational level. Married participants had significantly higher score of knowledge and practice than divorce or widow participants.

**Conclusion:** This study concluded that the participants had good knowledge, positive attitude and sufficient practice towards COVID-19. Knowledge was associated with educational level and marriage status of parents or guardians of patient children.

**Keywords:** Knowledge, Attitude, Practice, Parents, Children

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## Introduction

The coronavirus disease 2019 (COVID-19) is an emerging disease caused by SARS-COV-2 that is a new virus linked to the same family of viruses as Severe Acute Respiratory Syndrome (SARS) and some types of common cold (1, 2).

As the disease spreads globally, adopting public health guideline such as wearing face mask and social distancing were among the most important measures to interrupt epidemic transmission. Therefore, assessing knowledge, attitude, and practice (KAP) of people can provide baseline

information to determine proper changes in behaviors about taking precaution against virus. Assessing the KAP related to COVID-19 among the general population would be helpful to provide better insight to address the level of knowledge, status of attitude and insufficient practice about the disease and the development of preventive strategies and programs to health promotion (3). The Concept of Knowledge refers to individual understanding of any given topic. Attitude refers to their feelings towards the subject, as well as any preconceived ideas that they may have toward it. Practice refers to the ways in which they demonstrate their knowledge and attitude through their actions (3, 4). KAP survey also provides a general reflection of respondents' prevention practices toward COVID-19 and can prepare the policy makers to address current and future health crises related to diseases. Similar to all diseases, KAP toward COVID-19 play an integral role in determining a society's readiness to accept policies and guidelines that are related to behavior change (5). There are many ways for virus transmission including direct contact to respiratory droplets of an infected person (6, 7). The COVID-19 virus may survive on surfaces for several hours, but simple disinfectants can kill it (8). Individuals are infected from touching surfaces contaminated with the virus and then touching their face (e.g., eyes, nose, and mouth) (8). Therefore, public health behaviors are critical to slow the spread of disease transmission (9). Chronic disease patients including children with such diseases are among the Vulnerable population for more severe form of the disease (10). As the COVID-19 epidemic increased, the number of infected children increased gradually (11). In China, in a large number of positive COVID-19 cases, about 2% were children aged 0-19 years (12). Of 4,226 COVID-19 cases detected in the US until March 16, 2020, 5% were children consisting less than 1% of all US hospitalization (13). Therefore, given the importance of following public health precaution and substantial proportion of COVID-19 infection among children, the present study was conducted to investigate the KAP towards COVID-19 among parents or guardians of patient children during the peak of the COVID-19 epidemic, in Zahedan, Southeast of Iran.

## Methods

A cross-sectional study was conducted on 524 parents or guardians of patient children who referred to the pediatric clinics to visit pediatric specialists in May 2020. The participants were given adequate information about the objectives and purposes of the study and they were taken informed consent. Those parents or guardians who agreed to take part in the study, referred to interview in a quiet room.

### *KAP questionnaire*

The questionnaire consisted of two parts. The first part assessed demographic characteristics including age, gender, marital Status, level of education, Occupation statue, and place of resident. The second part consisted of knowledge, attitude and practice towards COVID-19. The questionnaire was developed based on the literature (11, 14). Knowledge section had 23 questions, and 5 questions were for each attitude and practice part, respectively. For the 23 items that were related to the knowledge, the maximum attainable score was '46' and the minimum score was '0'. The correct

answer was given 2-point score, "not know" were given 1 point score, and wrong answers were given 0 score.

A five-point Likert scale was used to measure attitude. Answer evaluating attitude towards COVID-19 had five option Likert scale ranging from strongly agree to strongly disagree. The total score ranged from 5 to 25. In practice items, good practice was assigned 1-point score and bad practice was assigned 0 score.

### *Preparing the KAP questionnaire for data collection*

The following steps proceed by the authors on the original questions collected from the literatures (11, 14). First, the original questions were independently translated into Persian by two faculty members in the field of health followed by a joint discussion to combine the two independent versions into a single concept. Then this translated version backwarded to original language by two Persian-English bilingual persons. A pilot study performed on 40 individuals, to assess their responses to the questions and identify possible mistaken and difficulties resulting from the translation. The cross-cultural adaptation of the questionnaire was performed during this stage to achieve semantic equivalence (equivalence between words), idiomatic equivalence (equivalent expressions or items needing substitution). The internal consistency of the questionnaire was assessed by Cronbach's alpha  $> 0.70$ . Ten specialist in infectious diseases and one epidemiologist were invited to assess the validity of the questionnaire. Regarding content validity, the experts requested to review the questionnaire and assess each item based on 4 criteria including relevancy, clarity, simplicity, and necessity. Content Validity Ratio (CVR) was calculated based on the responses to the necessity of questions. According to Lawshe's report (15), for 10 professionals, minimum required CVR for each item is 0.62. Content Validity Index (CVI) was used based on Waltz and Basel content validity index (16). Minimal required amount of CVI for each item was 0.79 (17). The CVI and CVR were calculated for each item. Minimum and maximum CVR were 0.80 and 1, respectively and for all items, so CVR was higher than acceptance level (0.62). The minimum and maximum of total CVR for whole questionnaire was 0.80 and 0.96, respectively. All items were satisfactory in terms of CVI (higher than 0.79) and no items were removed. Total CVI (average of CVIs of all items) was 0.91.

### *Statistical analysis*

The categorical variables were presented as frequencies and percentages and continuous variables were shown as Mean  $\pm$  Standard Deviation. To compare KAP scores and its scales, T-test or one way of ANOVA were used. P-value  $< 0.05$  considered statistically significant. All analyses were performed in SPSS version 18.0 (SPSS Inc, Chicago, IL, USA).

## Results

A total of 524 parents or guardians of illness children who referred to the pediatric clinic completed the survey questionnaire. The mean age of participants was 32.15 (SD = 7.69) aged ranging from 18 to 65 years old. Of total, 60.1% were female and remaining were males.

**Table 1.** Parents or Guardian Knowledge toward COVID-19 Symptoms and Prevention Strategy

Knowledge Questions	True, N (%)	Not know, N (%)	False, N (%)
The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and muscle aches.	440 (84)	8 (1.5)	76 (14.5)
Unlike flu, purulent nose, runny nose and sneezing are less common in people infected with the COVID-19 virus.	349 (66.6)	30 (5.7)	145 (27.7)
There is currently no effective treatment for COVID-19, but early supportive treatment can help treatment of COVID-19.	446 (85.1)	26 (5)	52 (9.9)
Disposable gloves can be effective to prevent COVID-19 virus infection.	400 (76.3)	16 (3.1)	108 (20.6)
COVID-19 is deadly	419 (80)	20 (3.8)	85 (16.2)
COVID-19 symptoms appear within 2-14 days	458 (87.4)	36 (6.9)	30 (5.7)
The flu vaccine is sufficient to prevent COVID-19	453 (86.5)	36 (6.9)	35 (6.7)
Not everyone with COVID-19 will progress to severe disease. Only older people Who have chronic diseases and obese patients are more likely to get the severe disease.	353 (67.4)	37 (7.1)	134 (25.6)
Eating or contacting wild animals can lead to infection with the coronavirus.	374 (71.4)	52 (9.9)	98 (18.7)
COVID-19 is thought to have originated from bats.	449 (85.7)	38 (7.3)	37 (7.1)
COVID-19 can be transmitted through airway, contact, feces and mouth.	35 (6.7)	16 (3.1)	473 (90.3)
If the mask is rotten, touching it with your hands will not cause infection with coronavirus.	292 (55.7)	23 (4.4)	209 (39.9)
People infected with COVID-19 cannot transmit the virus to others if they do not have a fever.	384 (73.3)	33 (6.3)	107 (20.4)
The COVID-19 virus spread by respiratory droplets of infected people.	480 (91.6)	13 (2.5)	31 (5.9)
Ordinary residents can wear general medical masks to prevent COVID-19 virus infection.	312 (59.5)	29 (5.5)	18.3 (34.9)
Children and adults do not need to take physical distance to prevent Coronavirus infection.	369 (70.4)	8 (1.5)	147 (28.1)
To prevent COVID-19 infection, people should avoid going to crowded places such as train stations and public transportation.	504 (96.2)	1 (0.2)	19 (3.6)
Isolation and treating people infected with the Coronavirus are effective ways to reduce the spread of the virus.	498 (95)	13 (2.5)	13 (2.5)
People who come in contact with a person infected with the Coronavirus should be quarantined immediately.	505 (96.4)	10 (1.9)	9 (1.7)
During the outbreak, eating meat is well cooked and safely safe	457 (87.2)	18 (3.4)	49 (9.4)
Patients should share their recent travel dates with health care providers	504 (96.2)	2 (0.4)	18 (3.4)
Disinfecting equipment and workplaces should be done at least once a day.	479 (91.4)	11 (2.1)	34 (6.5)
Washing your hands with soap and water can help prevent COVID-19 transmission	516 (98.5)	8 (1.5)	0 (0)

Of total, 75.38% were married, 36.26% had diploma and 30.73% were bachelor. Regarding to the occupation 220 subjects (41.99%) were jobless. Among the participants, 438 subjects (83.59%) had urban residency. The mean score of knowledge was 37.14 (SD = 4.87, ranged from 10-45). The majority of participants (84%) had correct information about the symptoms of COVID-19. (Table 1). The mean score of attitude was 21.07 (SD = 3.04) from a maximum possible score of 25 (Table 2). The mean score of practice was 4.22 (SD = 0.83) from a maximum possible score of 5. (Table 3). The total KAP score ranged from 36 to 74 with a mean value of 62.43 (SD = 6.76).

Table 4 shows description of knowledge, attitude and practice scores in terms of study variables. There was no significant difference for knowledge score in terms of sex. The educational levels had a significant relationship with knowledge (P-value = 0.005) and illiterate parents had lowest knowledge score compared to other educational

level. Marriage status had significant association with attitude and practice. Married participants had higher score of knowledge and practice than divorce or widow participants. The results also showed a positive significant correlation between knowledge with attitude ( $r = 0.308$ , P-value < 0.001) and practice ( $r = 0.233$ , P-value < 0.001). A positive significant correlation observed between attitude had practice as well ( $r = 0.207$ , P-value < 0.001).

### Discussion

This cross-sectional study was performed to examine KAP survey towards COVID-19 among parents or guardians of children who referred to the pediatric clinic in city of Zahedan, Iran. The results showed that knowledge had a significant and positive correlation with attitude and practice. There was also a significant and positive correlation between attitude and practice. In a KAP survey, Rugarabamu et al., (18) showed that knowledge was higher in females and age group of 30-49.

**Table 2.** Parents or Guardian Attitude toward COVID-19 Symptoms and Prevention Strategy

Attitude items	Agree	Strongly agree
COVID-19 will be successfully controlled.	217 (41.4)	168 (32.1)
We can win the battle against Coronavirus.	196 (37.4)	199 (38)
COVID-19 causes pneumonia, respiratory failure and death	179 (34.2)	250 (47.7)
Preventive behaviors are the only effective action for COVID-19.	196 (37.4)	252 (48.1)
Hand hygiene, covering the nose and mouth when coughing, and preventing contact with the patient can help prevent COVID-19 transmission.	127 (24.2)	379 (72.3)

**Table 3.** Parents or Guardian Practice toward COVID-19 Symptoms and Prevention Strategy

Practices' Questions	Right option, N (%)
In recent days, have you ever worn a mask when you leave home?	432 (82.4)
Have you been gone any crowded place in recent days?	315 (80.7)
Did you observe a distance of one or one and a half meters with others while waiting for the visit today?	478 (90.8)
Do you wash your hands with soap and water before eating?	517 (98.7)
Do you use any possible ways to prevent spreading virus during sneezing or coughing at home?	471 (89.9)

The knowledge increased by level of education such that collage participants had the highest and those who educated primary had the lowest that is similar to our study. Azlan et al., (13) found higher knowledge among females, people older than 50 years old and residing in central Malaysia. The present study compared the age groups of participants towards the scales of KAP and found that participants aged 41-50 had the highest knowledge, participants aged 18-30 years had more positive attitude and participants aged 31-40 years had significantly most positive practice towards COVID-19. Tomar et al., (20) reported that mean score of knowledge was  $11.36 \pm 1.2$  (range 0-13) and 80.64% had correct answers. In a KAP study of Maheshwari et al., (19) on medical student, the majority of the students (86.7%) had good knowledge about the main symptoms of COVID-19 and 92.4% of the students knew that early treatment can help recover from the infection. They showed that the knowledge scores of the female were slightly higher than males, although the difference was not significant. Azlan et al., (13) found that majority of participants were agree that COVID-19 would be successfully controlled. They found that about all of participants had confidence to win the battle against COVID-19 and was associated with age group and occupation. They also found that near nine of tenths were believed the Malaysian government handling is well upon COVID-19. In a Chinese survey with high positive attitude (4), the authors concluded that the positive attitudes are result of drastic measures taken by the Chinese government in mitigating the spread of the virus. In Malaysia, the swift action taken by the Malaysian government to prevent virus spread may have also

contributed to these positive attitudes. The higher perception and higher fear in a society can be a cause of better control of this century pandemic. Maheshwari et al., (19) found higher scores of attitude and practice in females. In the present study in comparing gender knowledge, attitude and practice, found that only attitude was different between males and females with favor in females. It means that females had more positive attitude towards COVID-19. Tomar et al., (20) found that the majority of participants had positive attitude towards COVID-19 such that more were agreed with isolation and quarantine to stop spreading COVID-19. Majority of population had not been in a populated place. About all were believe that COVID-19 can be successfully controlled. Moreover, mostly were agreed with the idea of lockdown to prevent the spread of COVID-19. They resulted that age, gender, marital status, area of residence, education, and occupation had not a significant effect on attitude level when marital status, geographical area had a strong impact. When the present study with a different question found that approximately more than third of four were agreed that COVID-19 would be controlled successfully, they won the battle against COVID-19 virus, pneumonia, respiratory failure and death are the resulted of COVID-19, and hand hygiene, covering the nose and mouth when coughing, preventing contact with the patient can help prevent COVID-19 transmission. This attitude towards COVID-19 help the population for better handing, bearing and making decision for attending in the population. Regarding the attitude scale of KAP, from the present study resulted that females and single participants had more positive attitude compared to their counterparts.

**Table 4.** Knowledge, Attitude and Practices Scores According to the Participant Characteristics

Variables	Groups	N (%)	Knowledge			Attitude			Practice		
			Mean	SD	P- value	Mean	SD	P- value	Mean	SD	P- value
Sex	Female		37.48	4.88	0.053	21.31	2.94	0.026	4.22	0.76	0.977
	Male		36.64	4.83		20.71	3.17		4.22	0.91	
Age groups	18-30		37.30	4.99	0.245	21.20	3.08	0.302	4.19	0.79	0.015
	31-40		36.88	4.87		21.01	2.92		4.32	0.83	
	41-50		37.91	4.38		21.06	3.17		4.09	0.87	
	> 51		35.09	4.23		19.45	3.86		3.64	0.92	
Marital Status	Married		37.14	4.88	0.160	20.87	3.03	<0.001	4.24	0.8	0.009
	Single		37.35	4.83		21.93	2.88		4.2	0.85	
Education	Widow or divorced		33.71	5.06	0.005	17.43	2.76	0.096	3.29	1.11	0.086
	Illiterate		34.56	5.35		20.29	3.24		3.88	0.93	
	Ninth Grade		37.63	4.54		21.22	2.76		4.27	0.74	
	diploma		37.5	5.06		21.42	3.02		4.23	0.83	
Occupation	Bachelor		37.17	4.58	0.219	20.71	3.21	0.430	4.25	0.85	0.68
	Master and Higher		36.14	4.91		21.43	2.6		4.33	0.66	
	Without job		37	4.66		21.08	3.01		4.25	0.74	
	Governmental job		36.7	4.66		21	2.85		4.27	0.84	
Place of living	Army job		36.09	4.29	0.386	20.09	2.97	0.905	4.14	0.94	0.771
	Self-employment		37.71	5.29		21.22	3.2		4.17	0.91	
	Urban		37.06	4.76		21.08	3.01		4.23	0.83	
	Rural		37.56	5.45		21.03	3.22		4.2	0.78	

From the present study and the mentioned studies, would be understood that females had more positive attitude towards COVID-19 because females were connected more than males with social media and hearing more news. Rugarabamu et al., (18) reported that their participants had good and acceptable practice in epidemic time. Related to the virus transmission, most of their participant believed transmitted occurred by respiratory droplets and also factors such as chronic illnesses and obesity can lead to a serious case of COVID-19, similar to the present study results. From the present study resulted that more than 80% of the participants had good performance in wearing mask, crowded place, social distance, washing hands with soap before and after eating and using possible items to prevent spreading virus during sneezing or coughing. In a study that conducted by Azlan et al., (13), found the similar practice with the present study. In Azlan et al., practice was associated with gender, age, region and occupation when the present study found an association with marital status only. Maheshwari et al., (19) showed a high percentage of the participants that avoided needless travel or outing during the outbreak. Maintaining social distance during the outbreak was the second most prevalent behavior reported by the student. Also, a high percentage of participants used hand sanitizer, washed their hands, used a mask, covered a cough and sneeze with a tissue. Based on the results of the Tomar et al., (20) study, male, old age, single, lower education has significant association with good practice when occupation did not have any associations. Interestingly, Azlan et al., (13) reported that the enquiry into the wearing of face masks gathered a mixed response. The present study found that participant's knowledge was associated with education only, attitude was associated with sex and marital status. The practice of participants towards COVID-19 changed with age and marital status. Tomar et al., (20) also found a positive significant correlation between knowledge-attitude, knowledge-practice and attitude-practice with strongest relation identified between practice and attitude similar to the present study that found knowledge had a significant and positive correlation with attitude and practice and significant and positive correlation between attitude and practice as well. In general, in the major societies of human population, knowledge among about COVID-19 is a good predictor of positive practice but not same to attitude such that the late scale had strongest correlation and impact on practice. The major limitation of the present study was that the sample were limited to the pediatric illness companions that attendant to pediatric clinics. Hence the results based on this study could not be generalized to all populations.

## Conclusion

This study concluded that the participants had good knowledge, positive attitude and sufficient practice towards COVID-19. Knowledge was higher in participant with higher level of education. The findings are useful for policy-makers to consider a comprehensive specific group target for health education program for COVID-19 prevention and control.

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## Ethical consideration

The study protocol was approved by Research Ethical Committee (REC) of Zahedan University of Medical Sciences (code: IR.ZAUMS.REC.1399.363).

## Conflicts of interests

Authors declared no conflict of interest.

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