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Review Article

Infection Control Precautions for COVID-19 At Home: Families' Caregiver Attitudes

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Abstract

Background: COVID-19 is a pandemic as declared by the World Health Organization, prompting global efforts to curb its spread through political actions and individual behaviors that rely on public awareness.

Aim of the study: Assess families' caregiver attitude toward the application of infection control precautions with coronavirus at home.

Research Design: A descriptive research design was applied to this study.

Sample: A convenience sample was used in this study; the total sample size was 170 family caregivers who attended the outpatient clinics within three months.

Setting: The outpatient clinics at the health insurance at Beni-Suef city.

Tools: One tool for this study was the Interviewing Questionnaire Sheet, designed to evaluate caregivers' personal characteristics and their opinions and attitudes about COVID-19 and home infection control precautions for the coronavirus.

Results: The result clarified that 69.4% of the caregivers had a positive attitude toward the application of infection control precautions with coronavirus at home.

Conclusion: Most families' caregivers held a positive attitude toward coronavirus control precautions at home, with no significant impact from sociodemographic characteristics. This positive attitude was more prevalent among younger individuals, married caregivers, those with higher education, urban residents, and individuals with adequate income who could save.

Recommendations: Implement an educational program to enhance families' caregiver practices regarding COVID-19

Kew Words: covid-19; infection control precautions; attitude; families' caregiver

Introduction

Coronavirus disease 2019 (COVID-19) is a highly contagious viral illness caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It had a devastating effect on the world's demographics, resulting in more than 5.3 million deaths worldwide. It has emerged as the most consequential global health crisis since the era of the influenza pandemic of 1918 [1-3]. Empirical clinical data has shown that the overall case fatality rate of COVID-19 is 2.3%. The ongoing COVID-19 epidemic has spread very quickly, and by February 15, 2020, the virus had reached 26 countries altogether, resulting in 51,857 laboratory-confirmed infections and 1669 deaths, with nearly all infections and deaths. In response to this severe situation, the World Health Organization (WHO) declared it a public health emergency of international concern on January 30 and called for collaborative efforts of all countries to prevent the rapid spread of COVID-19 [4].

Infection control precautions at home: Source control refers to the use of well-fitting cloth masks, facemasks, or respirators to cover a person's mouth and nose to prevent the spread of respiratory secretions when they are breathing, talking, sneezing, or coughing. In addition to providing source control, these devices also offer varying levels of protection for the wearer against exposure to infectious droplets and particles produced by infected people [5-8].

Family health is a state in which the family is a resource for the day-to-day living and health of its members. Family health is more than the sum of the personal health of individuals (including the father) who form the family since it also takes into consideration interaction in terms of health (physical and psychological) between members of the family and relationships between the family and its social environment at all stages of family life in its different structural types [9].

Nurses play a crucial role in the quality of health especially in pandemic crises. At the same time, the nurse can provide health promotion & psychosocial services include assessment, health education, counseling & appropriate referral [10-20]. The role of community health nursing services in the COVID-19 pandemic and vaccination efforts has been crucial. Trusted members of the community, community health nurses deliver vital health care to individuals in their homes and other community settings. Community health nurses have been at the forefront of COVID-19 pandemic preparedness and response. Through their efforts, the public is now more aware of COVID-19, preventative measures like hand hygiene and social isolation are being encouraged, and high-risk individuals are being identified and provided with support. Similarly, community health nurses have been instrumental in caring for COVID-19 patients, especially those who have chosen to stay at home and isolate themselves from the rest of society. Immunization efforts against COVID-19 also rely heavily on community health nurses. They are trying to dispel vaccine fear, encourage vaccination, and inform the public about the advantages of the COVID-19 vaccine. Community health nurses play an active role in the distribution of COVID-19 vaccines [21].

Aim Of the Study

Assess families' caregiver attitude toward the application of infection control precautions with coronavirus at home**.**

Subject And Method

I. Technical design:

Research design:

A descriptive research design was used to conduct the study.

Research setting:

The study was conducted at outpatient clinics at the health insurance branch of Beni-Suef city.

Sampling method and sample size:

Sample type: The convenience sample technique was used in this study.

A sample of family caregivers was recruited from the eligible group. The sample included every family caregiver who attended the outpatient clinic, lived with the patient at home, and agreed to participate in the study until reaching the sample size. The total sample size was 170 family caregivers, according to the following formula:

$$n_0 = \frac{Z^2 \mathrm{P}(1-\mathrm{P})}{e^2}$$

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{\mathrm{N}}}$$

n_0=Cochran's sample size recommendation

e= Margin of error =0.05

p= Population proportion =0.5
q= 1-p =0.5

z= from Z table =1.96 (at significance level 0.05)

N= Population size

Tool for data collection:

The data for this study were collected by using the following tool: A structured interviewing questionnaire designed by the researcher and written in a simple Arabic language to gather data that concerned the aim of the study and consisted of the following three parts:

Part I: Families' caregivers' socio-demographic characteristics:

Socio-demographic characteristics of the caregivers included age, marital status, caregiver's job, and educational level.

Medical status of the family: it included the presence of family members with chronic disease, age of the chronic diseased patient, type of the chronic disease, infectious disease (common communicable disease), immune deficiency disease for families, and causes of low immunity.

Part II: Caregivers' attitudes regarding COVID-19, such as having an important role in COVID-19 prevention, fear of infection of family members, belief that the COVID-19 pandemic will be overcome, etc.

Scoring system:

For the caregivers' attitude, agreed answers were scored two points, neutral answers were scored one point, and disagreed answers were scored zero. All items were summed up, and a mean attitude score was calculated. The total attitude score was further divided into:

- Positive attitude if the score was ≥60%
- Negative attitude if the score was <60%

Content validity:

The face and content validity of the study tools were assessed by a group of five experts in the community health nursing department of the faculty of nursing at Beni-Suef University for comprehensiveness, accuracy, and clarity in language.

II. Operational design:

Preparatory phase:

This phase included reviewing local and international literature related to the various aspects of the research problem. This helped the researcher to acquire the magnitude and seriousness of the problems and guided them to prepare the required data collection tools.

Pilot study:

The pilot study sample was 10% of the total sample and was included in the total study sample. A pilot study was conducted on 17 family caregivers; it

was done to evaluate the applicability and clarity of the tools, assess the feasibility of fieldwork, and detect any possible obstacles that might face the researcher and interfere with data collection. Necessary modifications were done based on the pilot study findings.

Fieldwork:

The data collection process spanned about three months, from April 2022 until September 2022. The researcher attended the outpatient clinics of the Beni-Suef Health Insurance branch from 9:00 am to 7:00 pm, one day per week (Monday); the researcher does not work during his official work through the three months, averaging 14-15 caregivers a day. The researcher interviewed the caregiver at the outpatient clinics. Each caregiver was interviewed individually after formal consent was obtained for participation in the study, according to ethical issues. Firstly, the researcher introduced herself to the family caregiver in the outpatient clinic, and a brief explanation of the nature and aim of the study was given before each interview. The researcher cleared the questionnaire to facilitate the understanding of any confusing or difficult questions in the tool. The time needed for completing one tool for the caregiver who could read and write was about 25-30 minutes, while for the caregiver who couldn't read and write, it was about 30-45 minutes.

Ethical Considerations:

Oral consent was obtained from each family caregiver to participate in the study sample. They were informed about the study aim and about their rights to refuse or withdraw at any time without giving reasons. The anonymity and confidentiality of the data were ensured and maintained. Additionally, all participants were assured that their anonymity and confidentiality were secured through coding the data. Moreover, participants were informed that the data was not reused for any research purposes without permission. The client promised not to be exposed to any errors or conspiracy resulting from the study.

III. Administrative design:

Approval was obtained from the Research and Ethics Committee at the Faculty of Medicine at Beni-Suef University. Official approval was obtained from the Dean of the Faculty of Nursing, Beni-Suef University, to conduct the study. A letter containing the title and aim of the study was directed to the director of the Beni-Suef Health Insurance Branch to seek permission for data collection. Total confidentiality of any obtained information was ensured. Also, the study maneuvers couldn't harm the participants.

IV. Statistical design

Statistical Design:

The collected data were collected and encoded in a special format to be suitable for computer feeding. Following data entry, checking and verification processes were carried out in order to avoid any errors. Data were analyzed using the Statistical Package for the Social Sciences (SPSS). The following statistical analysis measures were used. **Descriptive statistical measures** include numbers, percentages, and averages (arithmetic mean (X), and standard deviation (SD)). **Statistical analysis tests,** which include the Chi-square.

Results

Figure (1) showed that 41.2%, 47.6%, and 44% of family caregivers, their ages ranging from 20 to 30 years, had basic/middle education and had high education, respectively. While 57.1% were married, and 65.5% were urban residences.

Table (1) shows that 65.9% of the studied sample had chronic disease, and 35.9% of them were over 50 years of age. Also, 41.2%, had an infectious disease, and 37.6% had an immune deficiency disease, but 11.8% of them had an immune deficiency disease due to severe anemia.

Figure (2) presents that 69.4% of the studied sample had a positive attitude toward preventive measures for COVID-19 at home, while 30.6% had a negative attitude.

Figure (3) shows that most of the sample agreed and had a neutral attitude toward all mentioned items, except 61.8% disagree with the belief that the COVID-19 pandemic will be overcome; 45.3% disagree with the belief that governmental instructions are adequate for COVID prevention; and 40.6% disagree with the belief that people comply with COVID-19 prevention, respectively.

Table (2) shows that there is no statistically significant relationship between caregivers' total attitude scores and their ages, marital status, educational level, residence, and financial condition.

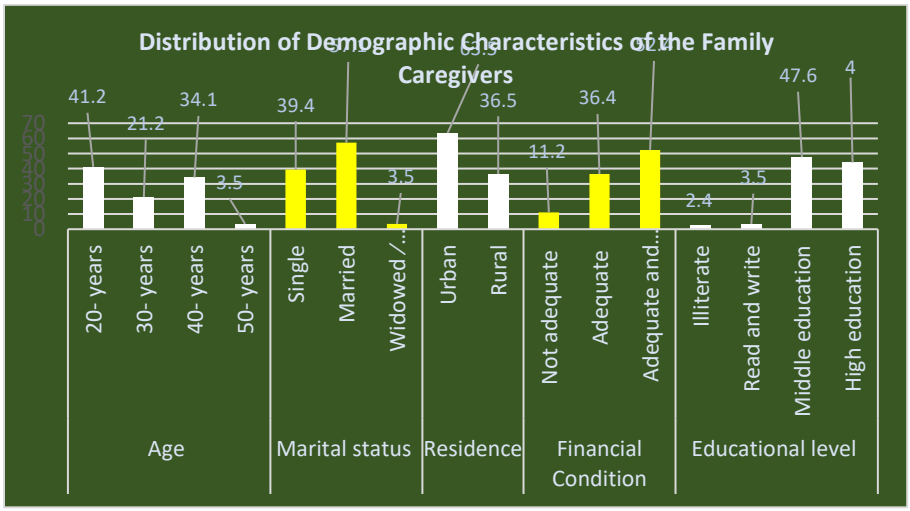

Figure 1: Percentage Distribution of Demographic Characteristics of the Family Caregivers (N=170)

Medical history	No.	%
1. Presence of family members with chronic disease		
No	58	34.1
Yes	112	**65.9**
Spouse	33	19.4
Grandparents	61	35.9
Brother/sister	5	2.9
Son/daughter	0	0
Other family member	13	7.6
2. Age of the chronic diseased patient (from 112).		
<10 years	6	3.5
10 to <20 years	6	3.5
20 to <30 years	6	3.5
30 to <40 years	13	7·6
40 to <50 years	20	12·4
≥ 50 years	61	**35.9**
3. Type of the chronic disease (N 112)		
HTN	19	11.2
DM	7	4.1
Cardiac disease	13	7.6
Renal disease	6	3.5
Pulmonary disease	7	4.1
Rheumatoid disease	8	4.7
Immunity disease	26	15.3
Liver disease	26	15.3
4. Infectious disease (common communicable disease)		
Yes	70	41.2
No	100	58.8
5. Immune deficiency disease for families		
Yes	64	37.6
No	106	62.4
6. Causes of low immunity		
Pregnancy	17	10.0
Children	14	8.2
Elderly	13	7.6
Severe anemia	20	11.8

Table 1: Distribution of the Medical Status of the Family (N=170)

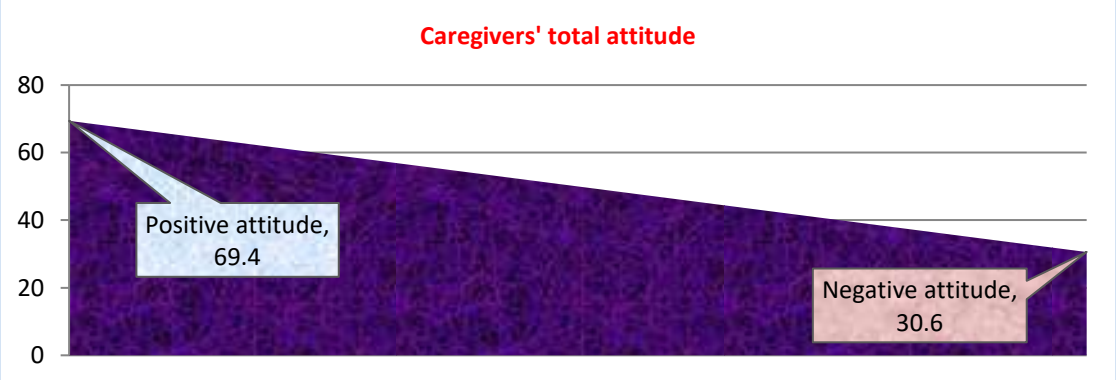

Figure 2: Percentage distribution of caregivers' total attitude scores (n=170)

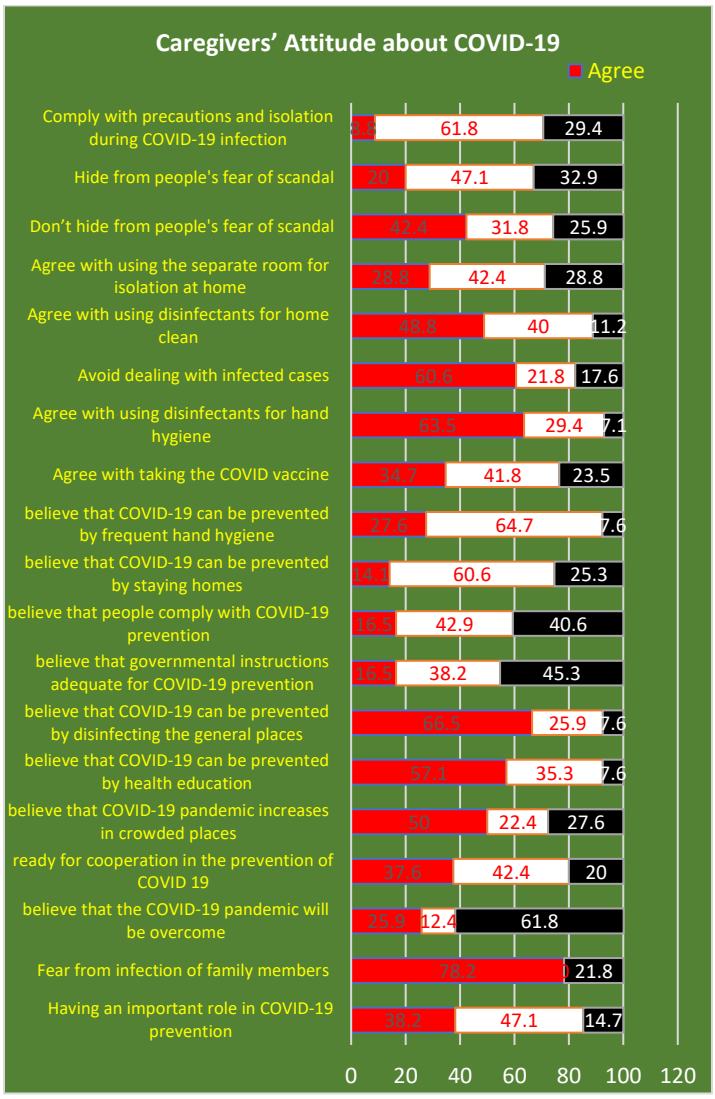

Figure 3: Percentage Distribution of Caregivers' Attitude about COVID-19 (N=170).

Demographic characteristics	NO	Negative attitude		Positive attitude		X^2	P-Value
		No	%	No	%		
1. Age							
20-<30 years	70	21	12.4	49	28.8	**4.24**	**0.257**
30-<40 years	36	7	4.1	29	17.1		
40-<50 years	58	21	12.4	37	21.8		
≥50 years	6	3	1.8	3	1.8		
2. Marital status							
Single	67	21	12.4	46	27.1	**1.21**	**0.544**
Married	97	28	16.5	69	40.6		
Widowed	6	3	1.8	3	1.8		
3. Educational level							
Illiterate	4	0	0	4	2.4	**4.24**	**0.257**
Read and write	6	3	1.8	3	1.8		
Basic education	85	28	16.5	53	31.2		
High education	75	21	12.4	58	34.1		
4. Residence							
Urban	108	31	18.2	77	45.3	**1.42**	**0.623**
Rural	62	21	12.4	41	24.1		
5. Financial condition							
Not adequate	19	4	2.4	15	8.8	**3.29**	**0.193**
Adequate	62	24	14.1	38	22.4		

Adequate and save	89	24	14.1	65	38.2		

Table 2: The Relation between Caregivers' Demographic Characteristics and their Total Attitude (N=170).

Discussion

COVID-19 is the latest emerging infectious disease confronting the world. It was first discovered in December 2019 in Wuhan City, Hubei Province, China. COVID-19 is a respiratory disease caused by the SARS-CoV-2 virus and is rapidly transmitted among people directly via respiratory droplets and secretions and indirectly through contaminated surfaces. Its incubation period is, on average, 5-6 days and can range from 1 to 14 days [22].

Organization (WHO) declared it a new pandemic, representing a devastating threat to livelihoods and human lives. Early during the first wave of the pandemic, there was no specific vaccine or antiviral therapy, even though the complete epidemiological nature of the disease was not known. So, the WHO declared global action plans and public health protocols to prevent infections with the virus and control the spread of the disease in communities [23]. So, the current study aimed to assess families' caregiver attitude toward the application of infection control precautions with coronavirus at home The results of the current study clarified that the highest percentage of caregivers had an agreed attitude about COVID-19 in the following: fear of infection of family members, belief that the COVID-19 pandemic increases in crowded places, and belief that COVID-19 can be prevented by health education and disinfecting general places. From the researcher's point of view, educational status can increase the awareness of caregivers, and occupational status helps in increasing positive attitudes. These results were similar to those of Guan et al. (2020); they assessed the clinical characteristics of coronavirus disease 2019 in China and showed that the majority of the subjects agreed about the issues of coronavirus [24].

The current study also revealed that the highest percentage of caregivers had a disagreed attitude about COVID-19 in the following items: they believed that the COVID-19 pandemic would be overcome and that governmental instructions were adequate for prevention. These findings were in the same line as Bhagavathula et al. (2020); they illustrated that a high number of the study sample disagreed about ending COVID-19, and governmental rules weren't sufficient to prevent it [25].

Concerning the total attitude of caregivers regarding COVID-19, the current study verified that more than two-thirds of the caregivers had a positive attitude, while only less than one-third of them had a negative attitude. These findings were in the same line as Roya et al. (2020), who revealed that 69.1% of the studied sample had a positive attitude toward the coronavirus [26]. These results were dissimilar to the results of Ferdous et al. (2020), who reported that most (78.9%) of the subjects had negative attitudes regarding COVID-19 [27]. nThe results indicated that there was no statistically significant relation between caregivers' total attitude score and their ages, marital status, income, and educational level. These findings agreed with Abdelhafiz et al. (2020) and found that there was no statistically significant relation between the studied sample's total attitude score and their ages, marital status, and educational level [23]. However, the positive attitude was more prevalent among younger individuals, those with higher education, urban residents, and individuals with adequate income who could save. This is expected, as those ones will have better housing sanitation, better nutrition, and better medical supplies and health care facilities as well.

Conclusion

Most of the families' caregivers had a positive attitude toward control precautions with coronavirus at home. Families' caregiver attitudes were not affected statistically by their sociodemographic characteristics. However, the positive attitude was more common among the younger ages, the married, the highly educated, the urban, and those whose income was adequate and could save from it.

Recommendations

1. Implement an educational program to enhance families' caregiver practices regarding COVID-19
2. Increase awareness of healthy practices for COVID-19 among all members of society in the different places such as home, MCH, school, and university.

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