

## Community's Educational Needs During the COVID-19 Pandemic: A Qualitative Study

### Abstract

**Background:** Due to its unknown nature, multifaceted symptoms, and rapid spread, the coronavirus has become a public health emergency, leading to international concerns. Therefore, this study aims to investigate the community's educational needs during the COVID-19 pandemic. **Materials and Methods:** This qualitative research was conducted between 2020 and 2021 using a conventional content analysis approach. The research sample comprised 340 recorded calls from individuals who contacted the emergency hotline of Isfahan University of Medical Sciences during the COVID-19 pandemic to express their concerns and anxieties. Sampling was conducted randomly and purposively until data saturation was achieved. Additionally, Graneheim and Lundman's approach was utilized for data analysis. **Results:** After analyzing the interviews, codes related to the reasons for contact were presented in five main categories, including awareness of the nature of the disease, awareness of preventive methods, awareness of diagnostic methods, awareness of treatment methods, and awareness of caring for high-risk groups and 15 subcategories. **Conclusions:** The results of this study highlighted various concerns regarding the coronavirus disease during pandemic conditions, which can serve as a foundation for appropriate educational and counseling programs based on community needs during future infectious pandemics.

**Keywords:** Consultation, coronavirus, educational needs, telephone response system

### Introduction

In late December 2019, the outbreak of a new viral disease caused by a novel coronavirus was reported in Wuhan, China. Within a very short period from the first reports and announcements, the speed of the virus spread turned into a global pandemic.<sup>[1]</sup> The symptoms of this disease vary from mild to severe and include fever, cough, and shortness of breath.<sup>[2]</sup> Other symptoms include fatigue, muscle pain, diarrhea, sore throat, loss of smell, and abdominal pain.<sup>[3]</sup> Since the presentation of the first report by the Wuhan Municipal Health Commission in December 2019 until the latest report by the World Health Organization (WHO, June 28, 2023), 767,518,723 individuals have been infected with coronavirus, and 6,947,192 individuals have died worldwide.<sup>[4]</sup>

At the onset of the pandemic, the coronavirus was unfamiliar and lacked a specific treatment. Given that this disease can also be transmitted during the latent period, and the end of its transmission period has yet to

be determined, the level of public literacy regarding the disease and self-care preventive behaviors becomes significantly essential.<sup>[5]</sup> Conversely, during the COVID-19 pandemic, more attention has been directed towards hospital-related issues and care, focusing less on recent WHO guidelines regarding home care challenges and self-care practices. Home care can serve as a supportive component of healthcare services and alleviate burdens on the healthcare system. Nevertheless, our understanding of home care and self-care challenges during the COVID-19 pandemic is limited. Paying particular attention to these challenges and issues can contribute to the enhancement of healthcare, particularly during times of crisis.<sup>[6-11]</sup>

Enhancing the level of public literacy through the dissemination of accurate news and the timely provision of educational tips and information for public awareness regarding preventive measures and, ultimately, reduction in the incidence rate of the disease can serve as a barrier against the spread of COVID-19.<sup>[12]</sup> Alongside

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vaccines or effective medications for COVID-19, preventive measures such as handwashing, proper cough etiquette, surface disinfection, and social distancing are primary weapons against the disease. In its report, the WHO recognized widespread awareness of transmission methods as the best approach to preventing and reducing the speed of COVID-19 transmission. Experience has shown that health campaigns that continuously communicate disease prevention messages and persuade people to change their habits are effective in reducing the rate of infection spread.<sup>[13,14]</sup>

The present study aims to investigate the Community's educational needs during the COVID-19 pandemic. This investigation was conducted through the hotline of Isfahan University of Medical Sciences, where individuals expressed their concerns and anxieties. Despite the significance of this issue, studies in this area are minimal, and there has yet to be much research on this topic during the coronavirus crisis in Iran. There is no comprehensive qualitative study that has examined the Iranian community's educational needs during the COVID-19 pandemic. The literature has not sufficiently focused on qualitative approaches to identify these needs. More rigorous qualitative studies are essential to assess these needs. Therefore, this study aimed to explore the community's educational needs during the COVID-19 pandemic in Iran.

## Materials and Methods

This qualitative study utilized the conventional content analysis method between 2020 and 2021. The research participants consisted of 340 recorded telephone consultations selected from over 10,000 messages received by individuals who contacted the emergency hotline numbered 3,113 at Isfahan University of Medical Sciences during the COVID-19 pandemic to express their educational needs, concerns and anxieties. The research environment was the hotline counseling system of Isfahan University of Medical Sciences. Data collection and analysis were done simultaneously until data saturation was attained. Meaning that data saturation occurred when no new concepts were obtained in the interviews and the data were repeated, so data collection was stopped and no new interviews were conducted. The duration of the analyzed consultations ranged from 10 to 15 min. This study used validity, reliability, generalizability, and non-biased indices to ensure the qualitative findings' accuracy and reliability.<sup>[15]</sup> To ensure the validity of the findings, sampling was conducted with maximum diversity, the long-term presence of a researcher in the research environment, and the utilization of colleagues' complementary opinions. To increase reliability, a precise method and coding framework were established.

Furthermore, the findings were validated by two external experts proficient in qualitative research methodology. Controlling findings with three participants and researchers' commitment to setting aside personal biases

ensured non-biased data. Data analysis was conducted simultaneously with data collection. Before coding, following the Graneheim and Lundman method, the audio data were listened to and read several times to gain an overall understanding. Then, the data were transcribed word by word and typed in the Microsoft Word software. MAXQ-DA software was used for coding. In the next step, the entire text was divided into smaller segments, and each segment was assigned a meaningful unit. This segmentation was entered into a table. Then, the general concept of each significant unit was summarized in a new column called "condensed meaningful unit." In the final step, the concepts in the condensed meaningful unit column were coded, and thus, all text became available in the form of extraction codes. Subsequently, the codes were grouped based on similarities and differences. An appropriate title was assigned to each group that included the concept of all codes within the group. Finally, these groups were placed into more significant categories (subcategories) as much as possible. Subcategories that had greater coherence were also merged, which led to the emergence of primary categories.<sup>[16]</sup>

## Ethical considerations

This study was approved by the University's Research Deputy Ethics Committee with the code IR.MUI.RESEARCH.REC.1399.034. Before the commencement of counseling, participants were informed that all conversations would be recorded and that their participation in the recording process was voluntary. Participants were assured of the anonymity of their personal information. Finally, permission was obtained to access the recorded conversations.

## Results

After analyzing the interviews, the codes related to the reason for contact were classified into five main categories: awareness of preventive methods, awareness of the nature of the disease, awareness of treatment methods, and awareness of caring for high-risk groups. These main categories were further divided into 14 subcategories, as presented in Table 1.

### Awareness of preventive methods

This includes disinfectant materials and their usage, effective food and multivitamins for strengthening the immune system, isolation methods for infected individuals, and COVID-19 vaccination procedures.

#### *Disinfectant materials and their usage*

At the onset of the COVID-19 pandemic, there was limited reliable information about virus transmission, which led many people to inquire about the use of disinfectant materials. For example, caller 4 asked: "*Excuse me, I bought some snacks from the supermarket. Do I need to wash them before use? No, it is not necessary. You can leave them in the open air for a while to ensure safety before consumption.*"

**Table 1: Concepts extracted from qualitative data analysis**

Main categories	Subcategories
1- Awareness of preventive methods	1-1: Disinfectant materials and their usage 1-2: Effective food and multivitamins for strengthening the immune system 1-3: Isolation methods for infected individuals 1-4: COVID-19 vaccination procedures
2- Awareness of diagnostic methods	2-1: Awareness of various COVID-19 diagnostic tests 2-2: Searching for primary clinical symptoms of COVID-19 in oneself and others 2-3: How COVID-19 spreads, the incubation period, and being a carrier
3- Awareness of the nature of the disease	3-1: Concerns about personal or familial contracting COVID-19 3-2: Concerns about contracting COVID-19 in social gatherings
4- Awareness of treatment methods	4-1: Consultation for appropriate treatment actions based on individual clinical conditions 4-2: Awareness of effective medications and their procurement methods
5- Awareness of caring for high-risk group	5-1: Breastfeeding and transmission of COVID-19 guidelines for mothers with COVID-19 5-2: Care guidelines for elderly patients 5-3: Care guidelines for chronic patients

### *Effective food and multivitamins for strengthening the immune system*

At the outset of the COVID-19 pandemic, many individuals feared contracting the virus. They believed their immune system was weak due to the unknown nature of the virus and the lack of specific medication for its treatment. Consequently, numerous individuals contacted daily seeking advice on strengthening their immune system. For instance, caller 35 inquired: *“Excuse me, what foods should I eat to strengthen my immune system? I am afraid of getting COVID-19.” You can eat all types of food, and there are no restrictions. Your body requires all nutrients. Do not worry; stress and anxiety weaken your immune system.”*

### *Isolation methods for infected individuals*

During the peak of the COVID-19 pandemic, many individuals with mild symptoms were advised to stay at home due to the completion of hospital capacity and the need to care for COVID-19 patients. However, many people lacked sufficient information on how to manage these individuals and isolate them from others. Consequently, several calls were received daily on this matter. For example, caller 45 asked: *“Hello, excuse me, my husband has contracted COVID-19 and is at home. What should I do? Should I take him to the hospital? What are his symptoms? He had a fever one day; I gave him acetaminophen, and he felt better, but he only had a cough from the next day. What is his general condition? He is fine; he has no other problems. Madam, there is a possibility that your husband*

*has COVID-19, but do not worry; it is likely mild, and there is no need to go to the hospital. I have young children at home, fearing they might get infected. What should I do? If possible, take your children to the home of a relative or keep your husband in a separate room and wash his clothes and disinfect the areas he frequents with alcohol. If his condition worsens, you can contact us again.”*

### *COVID-19 vaccination procedure*

At the onset of COVID-19 vaccine imports, only elderly individuals with compromised immune systems and healthcare personnel were authorized for vaccination. Consequently, families with elderly or sick members sought guidance on vaccination procedures through the COVID-19 consultation system and received pertinent information. For instance, caller 114 inquired: *“I heard on television that individuals above 60 years old can receive the COVID-19 vaccine. My parents are both over 60. How can I arrange vaccination for them? I suggest visiting the nearest health center where you have your records. Take their identification documents, such as their birth certificate or national ID card. Our colleagues there will administer their vaccines.”*

### *Awareness of diagnostic methods*

This category's subcategories constitute awareness of various COVID-19 Diagnostic Tests, searching for primary clinical symptoms of COVID-19 in oneself and others, how COVID-19 is transmitted, the incubation period, and being a carrier.

### *Awareness of various COVID-19 diagnostic tests*

At the onset of the COVID-19 pandemic, no definitive diagnostic test was available, and the most reliable test was PCR, which had expensive kits and required a physician's prescription for free testing, only accessible to elderly and high-risk individuals. Therefore, other individuals needing COVID-19 testing had to visit private laboratories or resort to blood tests (CRP, IgG, IgM), which had high error rates. Due to the similarity in names between PCR and CRP, some individuals needed clarification on the two tests. Numerous inquiries regarding information about diagnostic tests were made daily through the COVID-19 consultation system, such as caller 39, who stated: *“My husband works at a bank and has contracted COVID-19. They told him he needed to bring the result of his COVID test for treatment approval. Where can I take him for the test? How old is your husband? Does he have any specific illnesses? No, he is not among the high-risk individuals and cannot get tested for free. It is okay; we will pay for the test. You can take your husband to private labs for testing, and they will conduct the test there. I think the cost will be around one million (Iranian toman). That is okay. Thank you for your guidance.”*

### *Searching for primary clinical symptoms of COVID-19 in oneself and others*

At the onset of the COVID-19 virus outbreak, many



individuals contracted the disease and lost their lives—this instilled fear among people about contracting the illness. Due to the unfamiliarity with the symptoms of this disease, any symptom resembling a common cold was considered COVID-19. During that time, symptoms of COVID-19 were either added or removed periodically as research progressed on this virus. Therefore, anyone who notices symptoms in themselves should contact the counseling system and inquire about the possibility of being infected with this disease. For instance, caller 27 stated: *“I think I have COVID-19. What symptoms do you have? I had a fever for a day or two and then got better. I cough slightly, and my sense of taste and smell is gone. Sir, you are most likely infected with COVID-19. What should I do? Is your general condition good? Yes. Do you have any underlying conditions? Like diabetes, high blood pressure, or heart disease? No. Rest at home, keep your distance from others, wear a mask, and eat nutritious and protein-rich foods. If your condition worsens and you experience shortness of breath, go to the hospital.”*

#### *Transmission of COVID-19, incubation period, and being a carrier*

Many individuals who had mild cases of COVID-19 and managed their treatment at home were concerned about the end of the quarantine period and the possibility of being carriers. They would make multiple daily calls to the COVID counseling system. For instance, caller 17 stated: *“I had symptoms for a few days; I got tested, and they said it is COVID. I have been taking medication at home for a few days, and now I feel better. I want to know how many more days I need to quarantine. How many days have you been symptom-free? It has been 5 days. You should wait for 14 days from the time you no longer have symptoms, and then you will not have any problems.”*

#### *Awareness of the nature of the disease*

Concerns about personal or familial contracting COVID-19 concerns about contracting COVID-19 in social gatherings and the severity and course of the COVID-19 pandemic constitute this category's subcategories.

#### *Concerns about personal or familial contracting COVID-19*

Due to the increase in cases of fatalities from COVID-19, people experienced anxiety and worry about contracting the virus and dying. Therefore, calls expressing anxiety about contracting and fear of dying were received by the COVID counseling system, especially from elderly individuals, such as caller 68: *“I heard that most people who get COVID die. I am terrified of getting COVID. Madam, do not worry. Usually, fatalities are among those who have underlying conditions and delay seeking treatment when they contract COVID. You do not need to worry because stress and anxiety weaken your immune system. Try to stay calm. If you cannot control your stress, you can call this same system and select option 2. Our colleagues who are psychologists will provide you with counseling.”*

#### *Concerns about contracting COVID-19 in social gatherings*

Many individuals who, for various reasons, found themselves obligated to attend gatherings harbored fears of contracting COVID-19. Consequently, they sought counsel to alleviate their concerns. For example, caller 243 said, *“We have been invited to a wedding, but we are afraid of catching COVID. My mother is elderly and has diabetes. I am worried it might be risky for us to go. What is your opinion? Should we attend or not? Madam, we advise you not to attend crowded gatherings because this disease has a long incubation period, and it is possible that someone in the gathering might have COVID-19 without knowing it and could infect others. However, our close family members might get upset if we decline the invitation. It is okay if they get upset; it is better than risking the health of your loved ones. You would not forgive yourself if something happened to them later on. Thank you. I will give them a call and congratulate them. The right thing to do is to let them know that holding the ceremony right now is not advisable. They should wait until the end of the COVID-19 pandemic to have their celebration. Sure, I will tell them.”*

#### *Awareness of treatment methods*

This category's subcategories constitute a consultation for appropriate treatment actions based on individual clinical conditions (hospital referral, consultation with a physician, home quarantine, etc.) and awareness of effective medications and their procurement methods.

#### *Consultation for appropriate treatment actions based on individual clinical conditions*

During the peak of the COVID-19 pandemic, many individuals suspected of being infected sought guidance from the COVID counseling system to determine whether to consult a physician, seek hospitalization, or observe home quarantine while adhering to home care protocols. For instance, caller 22 stated: *“Hello, excuse me, my husband and I think we may have contracted COVID. What are your symptoms? I have a dry cough and lost my sense of taste and smell. My husband also has some shortness of breath. Do you have any underlying health conditions? No, but my husband has high blood pressure. Have you both taken COVID tests? Yes, we both underwent PCR testing, and both results were positive. Madam, your husband falls into high-risk groups. It would be best if you consulted a physician. If deemed necessary, he may recommend hospitalization.”*

#### *Awareness of effective medications and their procurement methods*

Many individuals experiencing symptoms resembling those of COVID-19 refrained from visiting their physicians due to fear of contracting the virus in crowded hospitals or clinics and potentially worsening their condition. Consequently, they reached out to the counseling system for guidance.

Based on their symptoms, the individuals were prescribed medication following consultation with a physician stationed at the counseling center. For example, callers 49 and 67 stated: *“Excuse me, my throat has been hurting for a week now, but I am afraid to go to the doctor because it is crowded there and everyone might have COVID that makes me sicker. Do you have any other symptoms? No, just a sore throat. I had a fever once, but it subsided after taking a footbath. You can take diphenhydramine syrup and gargle with it. If you have a fever, you can use acetaminophen. If your condition worsens, consult a physician or visit the hospital.”*

### **Awareness of caring for high-risk groups (elderly, chronic patients, pregnant women)**

Breastfeeding and Transmission of COVID-19 guidelines for mothers with COVID-19, and care guidelines for elderly patients and those with chronic illnesses constitute the subcategories of this category.

#### *Breastfeeding and transmission of COVID-19 guidelines for mothers with COVID-19*

Several cases of recently delivered pregnant mothers who tested positive for COVID-19 sought guidance through the counseling system regarding breastfeeding. For example, caller 47 expressed: *“I have recently given birth and tested positive for COVID-19. I want to breastfeed my baby. How can I do it? You can use formula milk. No, I do not want to give my baby formula milk. I want to breastfeed. You can pump your breast milk and store it in the freezer, then warm it up and feed it to your baby. For more information, it is advisable to consult with your midwife or obstetrician.”*

Some newly delivered mothers who tested positive for COVID-19 were concerned about the possibility of transmitting the virus to their newborns and sought guidance on transmission methods. For instance, caller 49 expressed: *“I recently had a cesarean delivery, and they diagnosed me with COVID-19 at that time. Since then, I have not seen my baby. When can I see him? It would help to remain in quarantine until 14 days after your symptoms resolve. During this time, strengthen yourself. Can I hold my baby and breastfeed him afterward? It is better to undergo another test. If it comes back negative, then yes. I heard babies do not get sick until they are six months old. Babies have maternal antibodies in their bodies from birth to 6 months, providing protection. However, as this disease is still not fully understood, it is advisable to observe hygiene practices. You can express and discard your breast milk until then to keep your milk ducts open. It is best to consult with your obstetrician or midwife for further guidance.”*

#### *Care guidelines for the elderly patients*

Some families whose elderly members resided with them inquired about caring for them through the counseling

system during the COVID-19 outbreak. For example, caller 54 expressed: *“My father lives with us; he is 70 years old, and he underwent heart surgery last year. I am afraid we might catch COVID-19 and lose him. We lost our mother last year, too.” Do not worry, madam. If you adhere to hygiene practices, maintain distance from others, and wear masks. Hopefully, everything will be fine. Your father should be under the supervision of a doctor....”*

#### *Care guidelines for chronic patients*

Some families with members suffering from chronic illnesses such as hypertension or diabetes sought advice through the COVID counseling system. For example, callers 110 and 309 expressed: *“My father has diabetes and has been under a doctor's care. His medication has run out, and we are afraid to visit the doctor's office to get it renewed. What should we do? How old is he? He is 63. Does he have any other illnesses? Not as far as we know. It is best to contact his doctor. If possible, they can visit your home for an examination or arrange a quiet time at their clinic for you to visit. Make sure to wear a mask when you visit.”*

## **Discussion**

This study aims to investigate the educational needs of various members of society during the COVID-19 pandemic. It indicates that people with limited information about the existing disease have diverse educational needs during such periods. In the present study, five main categories were identified.

The first category pertained to awareness of preventive methods against COVID, including subcategories such as disinfectants and their usage, practical food items and multivitamins for immune system reinforcement, isolation methods for infected individuals, COVID vaccination methods, and awareness of various diagnostic tests for COVID. A broad spectrum of studies has examined knowledge and techniques to prevent the spread of COVID-19. Ranjan and Ranjan (2020)<sup>[17]</sup> found that most participants have sufficient knowledge, and multimedia resources are vital sources of information. However, Wolka *et al.* (2020)<sup>[18]</sup> identified gaps in awareness, including misconceptions about preventive methods and negative attitudes toward quarantine and isolation. Amir (2022)<sup>[19]</sup> highlighted the importance of government strategies such as social distancing and quarantine in preventing the spread of this disease. Collectively, these studies emphasize the importance of accurate information, effective government strategies, and targeted education in preventing the spread of COVID-19.

The second category pertained to awareness of diagnostic methods for the disease, including subcategories such as searching the primary clinical manifestations of COVID-19 in oneself and others, understanding the transmission of COVID-19 and its incubation period, and being a carrier. Many studies have examined people's awareness of COVID-19 diagnostic methods. Zulfaqar *et al.* (2022)<sup>[20]</sup>

found high levels of knowledge among dental patients, particularly regarding protective protocols. Qiu *et al.* (2020)<sup>[21]</sup> provided a comprehensive examination of the clinical features of COVID-19, including the incubation period, which is crucial for understanding the disease. The results of a study by Mahnashi *et al.* (2021)<sup>[22]</sup> showed that the participants were aware of the most common COVID-19 symptoms, such as respiratory problems, fever, and cough. They also knew that the most preventative measure for maintaining personal hygiene is avoiding direct contact with infected individuals and using tissues when sneezing or coughing. The respondents' most common sources of information were social media and websites. These studies highlight the importance of general education and professional training in healthcare in increasing awareness of COVID-19 diagnostic methods.

The third category pertained to awareness of the nature of the COVID-19 disease, including subcategories such as concern about self or loved ones contracting the virus and concern about contracting the virus due to being in crowded places. Many studies have examined knowledge, attitudes, and fears related to the COVID-19 pandemic. Roy *et al.* (2020)<sup>[23]</sup> reported that the Indian population had moderate knowledge about COVID-19 but had high levels of anxiety and a perceived need for mental health care. Mertens *et al.* (2020)<sup>[24]</sup> identified predictors of fear of the coronavirus, including health anxiety, exposure to media, and concern for loved ones. Schabus *et al.* (2021)<sup>[25]</sup> highlighted the psychological burden and stress in the Austrian, German, and Swiss populations with an overestimation of the threat posed by the disease. These studies underscore the need for targeted interventions to address fears and anxieties surrounding the COVID-19 pandemic.

The fourth category pertained to awareness of COVID-19 treatment methods, including subcategories such as consulting for appropriate treatment based on individual clinical conditions (seeking medical care at a hospital, from a physician, or home quarantine) and awareness of effective medications and their procurement methods. Various counseling methods have been utilized to provide appropriate treatment during the COVID-19 pandemic. In the study by Li *et al.* (2023),<sup>[26]</sup> individuals who suspected they had contracted COVID-19 contacted the COVID-19 counseling system to receive guidelines on visiting a doctor or hospital, staying at home, and following up on home care. Hu (2020)<sup>[27]</sup> demonstrated the effectiveness of WeChat counseling groups in providing professional and psychological support to residents during the pandemic. Sargsyan *et al.* (2021)<sup>[28]</sup> recommended telephone counseling for specific patient groups, such as those with dizziness and throat symptoms, to minimize the need for in-person counseling. These studies collectively emphasize the importance of appropriate treatment and support during the pandemic, whether in hospitals, through remote counseling, or at home.

The fifth category pertained to awareness of caring for high-risk groups, including subcategories such as breastfeeding practices for infants with infected mothers, the transmission of COVID-19 from infected mothers to breastfeeding infants, elderly care, and management of chronic patients. Care for the elderly and individuals with chronic illnesses during the COVID-19 pandemic necessitates a multidimensional approach. Schlegel-Zawadzka *et al.* (2020)<sup>[29]</sup> underscores the importance of proper nutrition, physical activity, and rehabilitation in line with scientific recommendations. Adebuseye *et al.* (2020)<sup>[30]</sup> proposes an "on-site care" approach that encompasses home-based and telemedicine care, particularly for non-communicable diseases. Desideri *et al.* (2020)<sup>[31]</sup> highlights the vulnerability of elderly cancer patients and the need for adaptive strategies in geriatric oncological care. Tekiner *et al.* (2022)<sup>[32]</sup> addressed the impact of breastfeeding mothers' knowledge levels about the disease on their anxiety levels during the COVID-19 pandemic. When comparing the anxiety levels of mothers and their knowledge levels regarding breastfeeding, COVID-19, and sociodemographic characteristics, it was evident that mothers of infants aged 0 to 6 months had lower anxiety levels compared to mothers of older infants. Lubbe *et al.* (2020)<sup>[33]</sup> underscored the benefits of breastfeeding in mitigating potential risks during the COVID-19 pandemic. These studies emphasize the need for tailored and comprehensive care that addresses these populations' unique needs and challenges during the pandemic.

## Conclusion

The findings of this study shed light on various educational needs and public concerns regarding the coronavirus disease during pandemic conditions, which could serve as a foundation for appropriate educational and counseling interventions based on community needs during future infectious pandemics.

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## Conflicts of interest

Nothing to declare.

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