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Health information seeking behaviour during exceptional times: A case study of Persian-speaking minorities in Finland

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ABSTRACT

Literature on minorities' health-related information seeking shows that minorities, like non-minorities, require access to accurate and timely information, but they also need information in a range of languages and from a variety of sources. Health-related information seeking behaviour of Persian-speaking minorities living in Finland, explicitly focused on the COVID-19 pandemic situation, was investigated. Eighteen semi-structured interviews were conducted, and the extended Longo Health Information Model was used as a theoretical lens for analysing the data. The results point to several factors that can improve the outcome of minorities' health-related information seeking behaviours and activities, such as providing information related to their personal health, a deeper understanding of factors influencing the quality of health conditions at the individual or household level and broadcasting the latest health-related information in different languages and emphasize the needs for mental health-related information and services. The findings suggest that not only healthcare providers, immigration officials, and policymakers should be aware of the specific health-related information that minorities require, seek, and use during times of adversity, but also the extent to which how the identified factors influence the process of minorities' seeking health-related information.

1. Introduction

Throughout the history of mankind, there have been many exceptional times such as pandemics and epidemics with a rapid spread of diseases either globally or impacting many people within a short period of time (Stanborough, 2020). Research on health-related information seeking behaviour is an area of interest that has drawn much attention, particularly during exceptional periods, for instance, during the pandemics caused by the SARS outbreak (Lau, Yang, Tsui, & Kim, 2005; Qiu, Chu, Mao, & Wu, 2018), and most recently the COVID-19 pandemic (Karim, Singh, & Widén, 2021; Lloyd & Hicks, 2021; Montesi, 2021; Newton, Awuviry-Newton, Oppong Nkansah, & Abekah-Carter, 2022; Onchonga, Alfatafta, Ngetich, & Makunda, 2021). Exceptional periods affect individuals' lifestyles and quality of life (Nguyen et al., 2020), and have impact on their daily routines, including how people engage with health-related information such as that about COVID-19. Of special interest in the context of COVID-19, are aspects related to information fatigue (Skulmowski & Standl, 2021), search for reliable and relevant health information (Kor et al., 2021), access to information sources (Chu et al., 2021; Lachlan, Hutter, Gilbert, & Spence, 2021), encountered barriers (Lang et al., 2021), usage of information (Allington, Duffy, Wessely, Dhavan, & Rubin, 2021), and health outcomes (Landi, Pakenham, Boccolini, Grandi, & Tossani, 2020).

Many studies on health-related information seeking behaviour during the COVID-19 pandemic highlight the influence of various factors such as age, gender, ethnicity (Bronfman, Repetto, Cordón, Castañeda, & Cisternas, 2021; Dadaczynski et al., 2021; Tan et al., 2021), psychological factors such as anxiety (Ebrahim et al., 2020), socioeconomic factors including education, occupation, income, and marital status (Reisdorf et al., 2021), and cultural and religious factors (Kim, Ahn, Atkinson, & Kahlor, 2020) on individual preferences and practices. Studies conducted on vulnerable people, such as racial or ethnic minority populations, show that the impact of health outcomes on minorities differ from that of nonminority populations (Lee, Sulaiman-Hill, & Thompson, 2013), specifically during and after epidemics or pandemics (Alsan et al., 2021; Jang & Jung, 2021).

1.1. Problem statement

The majority of prior studies conducted on individuals' health-

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related information seeking behaviour during exceptional times have focused on different groups of local, and native populations (Eriksson-Backa, 2020; Cristea, Dub, Luomala, & Sivelä, 2020; Farooq, Laato, Najmul Islam, & Isoaho, 2021; Karim et al., 2021; Lohiniva, Dub, Hagberg, & Nohynek, 2021; Soleymani, Esmaeilzadeh, Taghipour, & Ashrafi-rizi, 2021; Soroya, Farooq, Mahmood, Isoaho, & Zara, 2021), whereas only a few studies have covered health-related information seeking behaviour of minority groups including immigrants, asylum seekers, refugees, and international students (e.g., Mangrio, Carlson, & Zdravkovic, 2020; Skogberg et al., 2021; Yip et al., 2009).

This study aims to address the health-related information seeking behaviour of minorities, and in particular Persian-speaking living in Finland by comprehensively exploring their health information activities during the COVID-19 outbreak. Health information-seeking behaviour (HISB) refers to the ways in which people seek information about their health, such as risks, symptoms, illnesses, treatment, and health-protective behaviours (Lambert & Loiselle, 2007; Mills & Todorova, 2016). In this line of research, two other essential concepts are frequently used, that is, (i) information behaviour, and (ii) information seeking behaviour. Information behaviour generally refers to individuals' approaches in interacting with information, more specifically, how individuals search, seek and utilize information (Bates, 2015; Case & Given, 2016, p. 324). Case and Given (2016, p. 324), argued that researchers should focus on underlying principles of information behaviour instead of merely focusing on evaluations of searching skills or system features. Secondly, "information seeking behaviour is highly rational (which is not often true), that such behaviour is oriented towards making some kind of decision (a common, yet flawed, assumption), and that it is possible to make relatively simple judgments about the value of our decisions" (Case & Given, 2016, p. 10). The need for health information, from the extended Longo health information model perspective, could be triggered and affected by various influential factors ranging from individual factors (such as demographic or socioeconomic factors) and contextual factors (information environment, information seeking for oneself, family members or friends, interpersonal social support, and networks), to situational factors (risk level, task complexity, and time pressure) (Gu & Mendonça, 2008; Longo et al., 2010).

This study identified factors influencing the process of health-related information seeking behaviour, focusing on Persian-speaking participants living in Finland but originating from Iran, Afghanistan, and Tajikistan, who speaks Farsi, Dari and Tajik that are three major recognized dialects of Persian (Beeman, 2005). Understanding minorities' health-related information needs, their information seeking, and how the acquired health-related information is used to their personal health, provides insights for healthcare providers, immigration authorities and policymakers to develop effective strategies on providing health-related information, particularly for minorities during exceptional times. The following research question was addressed: *"What health-related information is needed, sought, and used by Persian-speaking minorities living in Finland during the COVID-19 outbreak?"*

2. Background and literature review

2.1. Health-related information seeking of minorities during COVID-19 pandemic

Previous studies on health-related information seeking by minorities, such as immigrants and asylum seekers, during unusual periods found that they require reliable and timely information from a variety of sources, as well as varied kinds of information in a variety of languages (Mangrio et al., 2020; Skogberg et al., 2021; Yip et al., 2009). For example, Mangrio et al. (2020), studying refugees living in Sweden during the COVID-19 pandemic, found that in times of global emergencies, it is vital that the information is translated into the languages spoken by minorities and refugees and disseminated among them as quickly as possible to prevent a pandemic from spreading. In a Finnish context, Skogberg et al. (2021) examined the perception of sufficiency of information and preventive measures during COVID-19. The authors found disparities in perceived information sufficiency related to skills in Finnish or Swedish language, which highlights the need for using simple language in communication materials among people who have migrated to Finland. Moreover, common challenges in minorities' activities regarding their health information-seeking behaviour are associated with ethical issues, quality of care, education, language barriers, communication skills, cultural differences, source of information, and privacy concerns or self-confidence (Bodkin & Miaoulis, 2007; Dutta, 2009; Eriksson-Backa, 2008, 2010; Khan & Arif, 2014; Pálsdóttir, 2011). The preferred sources for health information of Swedish-speaking persons aged 65 or older in Finland were studied by Eriksson-Backa (2008), who found that medical packages, physicians, and newspapers were the most preferred sources. Due to consequences possibly caused by pandemics, such as isolation and social distancing, people nowadays commonly follow and access health-related information through online channels such as websites and social media, and more specifically phone-based applications (Sharma, Chandrasekaran, Boyer, & McDermott, 2015; THL, 2020; Wachter, 2016). During the COVID-19 pandemic, for example, minorities with diverse socioeconomic and demographic backgrounds were found to be at a higher rate of hospitalization. For example, Islamoska, Petersen, Benfield, and Norredam (2022), found that individuals of non-Western origin had a 2.5 times higher rate compared with individuals of Western origin, mainly due to their household size, occupation, and limitations on working remotely.

2.2. Persian-speaking individuals and the COVID-19 pandemic

According to Finnish statistical data, there were 15,105 Persian-speaking residents who study, live, work, or seek asylum and refuge in Finland by 31st December 2020 (OSF, 2021). Only a few studies have been conducted on Persian-speaking individuals assessing their health information seeking behaviour during unusual times, and those have been conducted in their home countries (Maleki, Ashtari, Molaie, & Youseflu, 2021; Molavi, Sharifi, Delavari, & Sharifi, 2020; Mousavi et al., 2021; Soleymani et al., 2021). These studies cover issues such as information needs, information sources, type of information, barriers to information seeking, and information validation. Table 1 shows a summary of issues in health information seeking behaviour during the COVID-19 outbreak among Persian-speaking individuals living in their home countries. For example, regarding the information type, Maleki et al. (2021), and Mousavi et al. (2021), found that Persian-speaking individuals often looked for epidemic news and how to access healthcare centers, as well as looked for information on prevention methods and self-care guidelines. In addition, Soleymani et al. (2021) and Maleki et al. (2021) found that in order to validate the COVID-19 related information, Persian-speaking persons often turn to officials to validate the information or search for information through reliable media resources.

2.3. Minorities and their health information behaviour

Some authors have provided insightful information regarding the barriers minorities often face when seeking for health-related information. For example, De Anstiss and Ziaian (2009) found perceived barriers related to services, including high cost of mental healthcare, lack of knowledge of services, not receiving the help sought, long waiting lists and self-reliance. Studies on Persian-speakers living outside of their native countries highlighted different issues in their health information seeking. There are many studies conducted on this specific minority population worldwide; however, none of them covers issues related to health information seeking behaviour during pandemics or other exceptional times. There are, however, general studies on Persian-speakers' seeking of health-related information and services (Barkensjö,

Table 1
Participants' health information seeking behaviour during the COVID-19.

Category	Subcategory	Source
Information need	Nature of the disease, transmission and prevention methods, updated information and news about the phenomenon, effective medication and treatments, symptoms/how to know if someone is suffering from COVID-19, and disease advancement	Mousavi et al. (2021), Soleymani et al. (2021)
Information sources	National media, international media, social networks, friends and family, local authorities, health staff, reputable organizations' websites, phone counselling services, printed and electronic information resources, social media, unofficial websites, and internet	Maleki et al. (2021), Mousavi et al. (2021), Soleymani et al. (2021)
Information types	Epidemic news, necessary equipment, prevention strategies, self-care guidelines, access to health service centres, diagnostic testing, and treatment	Maleki et al. (2021), Mousavi et al. (2021)
Information seeking barriers	Rumours, misinformation and anti-information, large amounts of information, anonymity of information resources in social networks, poor performance of the state media, lack of access to social media	Soleymani et al. (2021)
Information validation	Confirming with officials and reliable media resources, enquiring from doctors and specialists, personal experiences	Soleymani et al. (2021)

Greenbrook, Rosenlundh, Ascher, & Elden, 2018; De Anstiss & Ziaian, 2009; Ichikawa, Nakahara, & Wakai, 2006; Marquardt, Kraemer, Fischer, & Pruefer-Kraemer, 2016; Sadeghi, Shamsi, Baghernezhad Hesary, & Momenabadi, 2017; Sanchez-Cao, Kramer, & Hodes, 2013; Shawyer, Enticott, Block, Cheng, & Meadows, 2017; Strijk, van Meijel, & Gamel, 2011). Table 2 shows a summary of the main issues which were identified by these studies. For example, acquaintances such as friends were found to be the preferred health-related information sources among refugee adolescents (De Anstiss & Ziaian, 2009), while restrictive policies, systematic inequities, and structural disparities were found to be common barriers in studies of minorities' health-related information seeking behaviours (Mulé, 2021). In addition, Nickerson et al. (2020), and Sadeghi et al. (2017), highlighted community or support networks, and health promotional or educational programmes as common ways of passively channelling health-related information among minorities.

Previous studies with Persian-speaking individuals and their health-related information seeking activities have been explored through two different contexts, (i) when they are living in their native countries, and (ii) when they are living abroad as minorities. Both contexts highlighted the importance of personal and contextual factors in relation to health-related information and service seeking activities (Barkensjö et al., 2018; De Anstiss & Ziaian, 2009; Kamaraju et al., 2019; Soleymani et al., 2021; Ziersch, Due, & Walsh, 2020).

3. Methods

This study uses the Longo extended health information model and a qualitative approach to collect data about opinions and perspectives of Persian-speaking individuals regarding the impact of individual and contextual factors on shaping their health information seeking behaviour during the first wave of the COVID-19 pandemic (March–May 2021) in Finland. Data were gathered through semi-structured interviews conducted via online communication channels. The lead author

Table 2
Participants' health-related information/service seeking.

Category	Subcategory	Source
Health-related information/ service needs	Child health, mental health, non-communicable diseases, sexual health and HIV, women's health	Jervelund, Nordheim, Stathopoulou, and Eikemo (2019), Keygnaert et al. (2014), Lee et al. (2013), Raman et al. (2009), Shawyer et al. (2017), Strijk et al. (2011)
Health-related information/ service sources	Acquaintances (friends, peers, neighbours), medical professionals (physicians, health staff)	De Anstiss and Ziaian (2010), Slewa-Younan et al. (2017)
Health-related information/ service seeking barriers	Financial barriers) affordability, lack of access to inexpensive health services), policy and systematic inequality (restrictive policies, systematic inequities, and structural disparities), service-related barriers (accessing primary health care, lack of awareness of the structure and function of national health services, complex insurance access and coverage, mismatch between the local health system and perceived needs), sociocultural barriers (stigma by family and community, feelings of helplessness and insecurity, linguistic barriers, cultural differences, psychological and physical barriers)	De Anstiss and Ziaian (2009), Barnes, Harrison, and Heneghan (2004), Byrow, Pajak, McMahon, Rajouria, and Nickerson (2019), Kamaraju et al., 2019, Kang, Tomkow, and Farrington (2019), McColl and Johnson (2006), Mulé (2021)
Influential factors	Cultural and religious factors (shame, guilt, anxiety, fear of negative stigma, beliefs, and practices), segregation (social and economic marginalisation, barriers to social integration), healthcare providers' communication (concern and listening behaviours, issues with communication), psychological factors (war-related intrusive symptoms and depression, future uncertainties, stressful living circumstances, stressful relationships)	Barkensjö et al. (2018), Due et al. (2020), Ichikawa et al. (2006), Schock et al. (2015), Ziersch et al. (2020)
Passive receipt of information	Community or support network, health promotional or educational programmes, methods of presenting health-related materials	Lee et al. (2013), Nickerson et al. (2020), Sadeghi et al. (2017)

was responsible for recruiting participants and conducting the interviews. The interview guide was designed and consent form were developed in English and translated into written Persian by a native speaker and presented to the participants. The interview protocol is composed of three main sections covering altogether 21 questions. The participants were also asked to elaborate on their answers and, if possible, provide additional comments. The interview guide was consistently used in all interviews.

The first section included eight questions concerning sociodemographic information, such as gender, age, level of education, occupation, and residency grounds. The second section included seven questions addressing active information seeking behaviours as well as information needs and sources, passive reception of health-related information, barriers, and factors influencing the process of information seeking.

Active health seeking refers to searching for ways to change personal health habits or environment to move towards a higher-level wellness (Hampshire, Porter, Owusu, Tanle, & Abane, 2011). The passive receipt of health-related information occurs when people unintentionally receive information as a result of their daily activities, such as watching television or reading the newspaper (Longo et al., 2010; Wilson, 1997). For example, the following questions were asked:

- Where do you get health-related information about the coronavirus epidemic at the moment?
- How do you stay up to date about the coronavirus situation?
- Why do you choose these sources?

It should be noted that contextual factors include healthcare structures and function, health status, information environment, information seeking for self, family members, or a friend at risk or with current medical problems, interpersonal social supports, and networks (Longo et al., 2010). However, in this research we did not evaluate the participants' knowledge of the Finnish healthcare system and health status, but asked questions about other contextual factors such as information environment and health information seeking for self, family members, or a friend at risk. Regarding personal factors, this study did not include medical information such as genetics.

The third section included six questions about participants' evaluation of acquired information in relation to the COVID-19 pandemic in Finland. For example, participants were asked how they evaluate the reliability of information and their opinion about the outcome of their information seeking behaviours.

3.1. Data collection

The participants were recruited through convenience sampling and three channels were utilized: 1) the personal network of the lead researcher consisting of Iranian, Afghan and Tajik individuals residing in Southwest Finland, 2) announcements on the webpages and social media for Iranian and Afghan residents in Finland (these pages are a part of communication platforms for sharing or receiving information among the Persian/Dari speaking community's residents in Finland), and 3) using a snowball sampling strategy. Eighteen individuals meeting the inclusion criteria volunteered to join the study. The participants were all speaking different dialects of Persian (Farsi or the Persian of Iran, Dari Persian of Afghanistan, and Tajik) and had different bases of residency (students, immigrants, and asylum seekers). They were all over 18 years old and currently resided in Finland. All the interviews were conducted in the Persian language through tele-interviewing in order to meet the restrictions caused by the lockdown and the Emergency Powers Act of Finland (1080/1991 and 198/2000), which were in force during the time of the interviews. The interviews were recorded using a voice recorder, and each interview lasted from 30 to 60 minutes, with an average length of 45 minutes. All interviews were transcribed into Persian, and the transcripts were translated into English for further analysis.

3.2. Data analysis

The qualitative analysis was deductive and coding and analysing of the interview contents were based on the extended Longo health model (Longo et al., 2010), using NVivo v. 12 qualitative data analysis software. The objective was to identify participants' health-related information seeking behaviour, the types of health information they need, their preferred health-related information sources, and the adequacy of the health-related information seeking process (Freimuth, Stein, & Kean, 1989; Johnson & Case, 2012). The process of coding of the interview data started by reading and coding each interview and quoting the relevant text. First, the interview transcripts were imported to NVivo and a mind map for analysing the data was created. Next, the required codes for extracting general characteristics of participants and classifying the data according to the Longo model including personal factors, contextual factors, active information seeking and health information sources, passive means of receipt of health-related information, and a general code for evaluating health outcomes were defined.

4. Findings

4.1. Demographic information of the participants

Eighteen individuals speaking one of the three main dialects of the Persian language and with varying reasons for residency in Finland participated in the study. Their personal characteristics including gender, age, health status, language of information seeking, education, occupation, residency basis and residency length are listed in Table 3.

The themes discussed below were extracted using the original Longo model. However, it should be noted that while coding the interview data, to the researchers extended the Longo model further by adding two new components (i) health information need, and (ii) health information use into the model.

4.2. Contextual factors

The interview analysis revealed some new factors such as information seeking barriers and policy and systematic inequality, which are explained in the following subsection.

4.2.1. Information environment

Regarding the information environment, a slight majority of the participants indicated that there is enough health-related information available about the pandemic, but a few participants thought that there is too little, and some mentioned that there is too much health-related information spreading about the outbreak. One respondent stated that "*I think that there is too much health-related information and news about the corona situation in Finland, which is boring, stressful, and confusing for me*". Conversely, another respondent stated that, "*in my opinion, there is not too much health-related information on the corona situation as it is a global,*

Table 3
Participants' characteristics ($N = 18$).

		Frequency	Percentage
Gender identification	Male	10	56
	Female	8	44
Age group	20–30 years	4	22
	31–40 years	8	44
	41–50 years	4	22
	51 years and over	2	12
Health status	Risk group for severe COVID-19	3	17
	Not in risk group	15	83
Language of information seeking	English	14	78
	Persian	7	39
	Finnish	6	33
	Swedish	1	6
Education	Upper secondary or vocational school, institute	4	22
	Bachelor's degree	5	28
	Master's degree	7	39
	Doctoral	2	11
Occupational status	Job seeker	2	11
	Laid off	2	11
	Studying	8	44
	Working	6	34
Residency ground	Asylum seeking	6	34
	Family tie	4	22
	Studying	8	44
Residency length	1–5 years	11	61
	6–10 years	4	22
	over 10 years	3	17

ongoing situation. I believe we have very limited health-related information about the corona situation in Finland".

4.2.2. Information seeking for self, family member, or friend at risk

The majority of the participants mentioned that they did not belong to any risk groups of becoming severely ill by the virus, and they did not have any family members or friends at risk either. However, a few participants described themselves, their relatives, or friends as having a higher risk of becoming infected with the coronavirus. Five participants mentioned they have some relatives or friends in their home countries diagnosed with COVID-19.

4.2.3. Health-related information seeking barriers

Fifteen participants commented on barriers to information seeking and many indicated sociocultural barriers. A few of the respondents mentioned financial barriers, policy, and systematic inequality, as well as service-related barriers. According to previous studies investigating barriers to healthcare access among refugees and asylum seekers, policy and systematic inequality are referred to as mineralised status, restrictive policies, systemic inequities, and structural disparities (Morgan, Melluish, & Welham, 2017; Mulé, 2021).

4.2.4. Financial barriers

One respondent mentioned medical visit costs as a barrier to seek health-related information. This person stated that,

> "recently, I had a fever and some symptoms like the coronavirus infection. I called [name of private hospital] hospital which has a contract with [name of university] for medical services. They asked me to fill in an online questionnaire, and if the result was positive, then I would have to have a medical test. They charged me €40 for just filling in the online questionnaire, before I had even visited a physician or nurse. This kind of medical service is free of charge in my home country, Iran. […] if I knew that they would charge me for just filling in an online questionnaire, I would not have bothered calling them".

4.2.5. Service-related barriers

Regarding the barriers to service-related access, having access to primary healthcare and a mismatch between the local healthcare system and perceived needs of individuals were mentioned frequently by the participants. Regarding having access to primary healthcare, a participant provided a personal experience about Finnish primary healthcare services and health-related information during the outbreak, stating that: "*when I need health information related to the outbreak and the primary healthcare services during the COVID-19 outbreak, I search in English because when I search in English then I will have access to more health-related information sources and media*".

Several participants mentioned a need for mental health-related information and services, while none of them reported receiving such information or services during the outbreak. The following direct quotes provide good examples of lacking health-related information and service-related barriers. A participant mentioned that: "*people mainly discuss healthy habits and practices during the coronavirus pandemic. However, it is less likely to see how personal relationships between couples, family members and friends are affected by the coronavirus pandemic*", and: "*There is no information about how the lives of human beings will change after the coronavirus pandemic",* and: "*I see that most people and media share health information about the short-term effect of the coronavirus on people's lives. However, in my opinion it is very important to talk about the long-term effects of the coronavirus pandemic on people's lives. I have a personal experience about war between Iran and Iraq and, at that time, the media also covered mostly news about short-term effects of war on people's lives, such as how to make a safe shelter for people in war zones. There was no guidance or help about how to cope with long-term psychological and emotional effects of war on people's lives*".

4.2.6. Sociocultural barriers

Fifteen participants commented on language barriers as their main issue when seeking health information during the outbreak. In addition, two participants mentioned psychological barriers, and one mentioned cultural competence. Psychological barriers were described as an elevated level of stress due to the outbreak, and cultural competence was described as the ability of the Finnish healthcare system to provide care to individuals with diverse backgrounds, including tailoring delivery of health-related information and services to meet individuals' social, cultural, and linguistic needs.

4.3. Policy and systematic inequality

Regarding structural disparities, one participant stated that, "*I feel like an immigrant. I am not fully aware of health-related information on the corona situation in Finland. It is mainly because little information or only selected news are translated into Persian or English for Persian-speaking residents in Finland*".

4.4. Personal factors

The interview findings highlighted personal factors influencing Persian-speaking participants' information seeking activities during the outbreak. These factors include attitude, behaviour, and inclination towards informal health information, as well as factors influencing cognitive abilities, cultural and religious factors, healthcare providers' health-related communication, psychological factors, and segregation. Table 4 shows the summary of different personal factors with their frequency of occurrence. Participants mentioned different approaches to informal health-related information during the outbreak, ranging from asking their friends and relatives who are knowledgeable to not paying attention to informal health-related information or rumours. The analysis also revealed the importance of cognitive ability, which is a mental capability related to the ability for reasoning, planning, solving problems, learning quickly, and learning from experience (Gottfredson, 1997). Cognitive abilities can, according to the participants, be influenced by behavioural and emotional problems, which have an impact on adopting different strategies for evaluating reliability and false information in terms of reasoning, planning, and solving of health-related issues during the outbreak.

For example, one person commented that, "*the pandemic, as an unknown phenomenon, is very stressful for everyone, people are not able to follow their normal lives and they have to replan and adjust their daily schedule accordingly. I am just trying to avoid any information or news which increase my stress and affect my mental health*".

The analysis of the interview data showed that the participants applied seven different strategies for evaluating reliability of health-related information such as asking their relatives, friends, or co-workers, or checking if the information is logically acceptable. As Table 4 shows, participants also mentioned a few examples regarding the influence of cultural and religious factors such as superstitious information and cultural events. However, there were several comments related to healthcare providers' communication including language barriers, ambiguous and confusing health-related information, rules and regulations, and outdated information. One participant said that:

> "I have one example about confusing health information about the outbreak. Recently, BBC Persian had two interviews with a healthcare professional about how long the coronavirus can stay alive on metal and plastic surfaces. In the first interview, the expert said that the coronavirus can stay alive on metal surfaces for 20 days. However, he argued in another interview that the virus can only stay alive for 3 days. It is very confusing for me to understand which one is the correct health information".

Finally, the psychological factors and segregation were other personal factors mentioned during the interviews, in addition to future

Table 4
Factors influencing health-related information seeking behaviour.

Main category	Subcategory		*N*
	Contextual factors		
Information environment	Too much information, enough information and too little information		18
Information seeking for self, family member, or friends at risk	(1), No, (2) myself, relatives, or friends in Finland, (3) relative or friends in home country		18
Information seeking barriers	Financial, service-related, social-cultural barriers		18
Policy and systematic inequality	Structural disparities		1
	Personal factors		
Attitude, behaviour, and inclination towards informal information	Not paying attention to informal health-related information or rumours		6
	Double checking with formal information		3
	Increasing stress		2
	Informal information is at high risk to be false		2
	Asking friends and relatives who are knowledgeable		1
	Influence on people's behaviour		1
	Informal information is a good approach for more ideas		1
	Informal information increases confusion		1
Cognitive abilities	Behavioural and emotional problems	Behavioural and emotional issues due to stressful living situation during the COVID-19 outbreak	3
	Strategies for evaluating reliability of health-related information	Checking official sources	8
		Asking physicians, nurses, or healthcare providers	3
		Checking scientific sources	2
		Checking if the information is logically acceptable	2
		Asking relatives, friends, or co-workers	1
		Checking different information sources	1
		Checking source reputation	1
	False information	False information being a problem while seeking health-related information	10
Cultural and religious factors	Superstitious information and practices		1
	Participating in cultural events while not all attendants follow the pandemic regulations		1
Healthcare providers' health-related communication	Language barriers		4
	Confusing health-related information related to the COVID-19 outbreak		2
	Confusing rules and regulations		2
	Incomplete health-related information about the COVID-19 outbreak		1
	Outdated information related to medical services and products during the COVID-19 outbreak		1
	Delay in taking practical actions		1
Psychological factors	Future uncertainties		2
	Stressful living circumstances due to pandemic		2
Segregation	Lack of strong social interaction with local people		1
	An immigrant is not fully aware of health-related information about the COVID-19 outbreak in Finland		1

uncertainties and lack of strong social interactions (see Table 4). As an example of segregation, one participant commented that, "*I do have good command of the Finnish language; however, I do not have strong social interaction with the local community*".

4.5. Health-related information needs

All participants expressed a strong need for health-related information regarding the COVID-19 pandemic. Nearly all participants indicated that they seek information in English, and little more than one-third mentioned that they seek information in Persian. One-third of the participants also used information in Finnish and in addition, one sought information in Swedish. As much as eleven participants who had lived in Finland from 1 to 5 years reported that they mostly use English and Persian as their preferred language for health information seeking. Regarding the health-related information needs, almost one-third of participants mentioned that they are primarily concerned about mental health. A couple of respondents also mentioned well-being and maternal health as their main health information needs. As many men as women expressed needs for information about mental health, and compared to the other groups, students expressed needs for this kind of information the most.

4.6. Active information seeking

The participants used a variety of information sources during the pandemic, such as acquaintances (relatives, friends) mentioned by two-thirds, community connections (Instagram and WhatsApp) and family members (partners), mentioned by one-third respectively, and media sources (TV and newspaper), medical professional information sources and other sources mentioned by some of the participants. The two most commonly mentioned health-related information sources were friends ($n = 12$) and social media ($n = 9$). Table 5 shows a summary of different health-related information sources and the number of participants that mentioned using each source.

Table 5
Sources used for information seeking.

		Active information seeking	***N***
Sources for active information seeking	Acquaintance	Friends	12
		Colleagues	2
		Relatives	1
		People in general	1
	Community connections	Iranian or Afghan Telegram channels	3
		Instagram channels	3
		Facebook groups	2
		WhatsApp groups	1
	Family members	Partner and family members	5
	Media Sources	Social media (Facebook, Instagram)	9
		National media (Finland's national public broadcasting company including Yle TV, Yle English, and Yle official website)	6
		International media (BBC international, Fox News, CNN, BBC Persian)	4
		Printed and electronic information sources (New York Times, Helsingin Sanomat, Daily Mail, Washington Post)	3
		Emails (informative emails from university)	3
		Reputable organizations (World Health Organisation)	2
	Medical professional	Physicians, nurses, Finnish Institute for Health, and Welfare (THL), and local health authorities	2
	Other sources	Finnish Ministry for Foreign Affairs	1

Passive receipt of information		***N***
Sources for passive information seeking	Heath promotional or education programmes	8
	Community or network of support	12

4.7. Passive receipt of health-related information

During the COVID-19 outbreak, participants expressed two avenues for passive receipt of information: (i) a community or network of support (mentioned by a majority of the participants), and (ii) health promotional or educational programmes (mentioned by almost one-third). See Table 5.

4.7.1. Community or network of support

The most common sources for passive receipt of information through a community or network of support were social media and emails (3 of 18 respectively), family members, friends, and colleagues, as well as mobile messaging applications (3 of 18 respectively), and Internet (Google) (1of 18). Eight respondents mentioned the formats used to present health-related information and how such formats influence their passive information reception during the COVID-19 pandemic. Almost everyone identified the language of the information, and a few noted infographics, as well as the fact that information is accessible through mobile devices. They mentioned that all these sources have a significant impact on their passive information receipt. One of the participants stated that,

> "I would like to make a comment concerning the health-related postal information mailings [from health authorities] that are distributed in [name of hometown]. I do not think sending health-related information in the form of a letter may be very informative for people like myself who do not speak Finnish or Swedish well. If the message had been written in English, I believe I could have used the information for my own benefit".

4.7.2. Health promotional or educational programmes

Examples of health promotion or education programmes mentioned by the participants included the Finnish national media (YLE) educational programmes in Persian, Dari and Kurdish languages, Finnish municipality instructional letters, and a hospital-specific educational programme for maternal health. For example, one participant said that "*recently, I have been following YLE on social media, because they started to provide some health-related information about the outbreak in Kurdish language which is my mother tongue*".

4.8. Health-related information use

All participants mentioned that they use health-related information for various purposes. For example, four of them mentioned that they use health information as they are concerned about their well-being, and one participant mentioned he uses maternal information. However, all participants mentioned that they used information related to COVID-19 to better understand their health situation and how well they can prepare themselves to cope with the pandemic situation.

4.9. Health-related information seeking outcome

4.9.1. Activities of daily life

A few participants mentioned improvements in their daily life activities after receiving information related to their personal health, including improvements in common sleep disorders during the pandemic, physical activity limitations at the early stages of the pandemic, and personal hygiene. Here, some comments from the interviews are highlighted about how individuals' daily activities have been influenced. For example, one participant mentioned that: "*in the beginning of the outbreak in Finland, I did not go jogging for a few weeks because I was so scared of getting infected. However, I understood that if I keep a social distance to others then I can do my daily jogging*", and "*I used to touch my face many times a day, but I learned that touching my face can spread the coronavirus*".

4.9.2. Empowerment

The results of the interview analysis revealed that having access to reliable health-related educational video clips and texts, infographics related to individuals' health during the outbreak, and formal emails from authorities, all contribute to the empowerment of the Persian-speaking participants. For example, the following comments are extracted from the interviews: "*there was an educational video clip on YouTube in which an American physician explained how to safely handle our groceries during the corona epidemic*", and "*Daily, I receive the latest news and health-related information about coronavirus from my employer who belongs to the municipality of [name of city]. Therefore, I am aware of the latest health-related information and government decisions about this situation*".

4.9.3. Health outcomes

Three of the participants mentioned that they have reached better health outcomes as a result of a deeper understanding of the elements that influence health quality of an individual or family member. A couple of participants also mentioned information about taking essential vitamin tablets during the outbreak. For example, one participant used this information to improve his personal health: "*recently, I started taking multivitamin tablets because I read about their health benefits on boosting an individual's immune system*".

4.9.4. Satisfaction

Some participants explained that they were more satisfied with their health-related information seeking activities when the Finnish national broadcasting agencies, including the YLE website and YLE TV started to provide the latest health-related information in different languages including Kurdish and Dari (Persian) languages. Regarding the participants' enhanced satisfaction with health-related information, a participant said that "*I read on YLE about sleep disorders during the coronavirus pandemic. I started tracking my sleep quality and hours. I can now manage to sleep regularly for like 8 hours per day. I can see that the YLE news made me think about my sleeping habits, and now I feel much better after getting enough sleep*".

5. Discussion

Prior studies show that the cognitive ability impacts individuals during exceptional times, specifically when the level of uncertainty is high, and their need for accurate and timely health information are increasing (Mangrio et al., 2020; Skogberg et al., 2021; Yip et al., 2009). Therefore, the evaluation of cognitive ability is required to assess how individuals behave in uncertain situations and what strategies they apply to recognize relevant health-related information to cope with the situation, especially in the case of vulnerable groups such as minorities (Ecker et al., 2022).

This study focused on non-native minorities "Persian-speaking" residing in Finland to assess the health information seeking behaviour of this group. It can be argued that the health information needs of minorities, in addition to common needs, might be different compared to those of native people. While studies on the native Finnish population show high concerns about mental health issues during the COVID-19 outbreak (Cristea et al., 2020). Other studies showed that social media and personal networks were not the preferred sources for health information among native Finns (Soroya et al., 2021). However, the results showed that for Persian-speaking minorities living in Finland, social media platforms are the preferred health-related information sources.

As mentioned, the extended Longo model was used as theoretical base to evaluate the effects of personal and contextual factors, as well as the effects of active and passive receipt of information on health outcomes among the Persian-speaking minorities in Finland. The model enabled the researchers to explore health-related information seeking of individuals particularly during the exceptional time caused by the COVID-19 pandemic. In addition, this study assessed the influence of

sociocultural barriers and examined the impact of contextual and personal factors on health-related information seeking in the studied group. A modified version of the Longo model (see Fig. 1) was proposed, and this enabled a better understanding of health-related information seeking of minorities during exceptional times. In the proposed model, two new elements: people's need for and use of health-related information having a considerable impact on people's health information seeking behaviour were added. The proposed health model highlights the role of information need in the process of information seeking and enables to identify the gap between the perceived information need and how the information is used (Riley, 2012).

The interviews conducted to obtain the participants' personal health-related information needs during the pandemic revealed that the majority of the participants perceived that the language barrier is the most significant obstacle to finding relevant health information. Similar to previous studies on health-related information seeking behaviour of minorities, the participants emphasized their special needs for health-related information in relation to, e.g., the nature of the disease, transmission and prevention methods, and updated information and news about the phenomenon. Such findings are similar to earlier results found by Maleki et al. (2021), Mousavi et al. (2021) and Soleymani et al. (2021). However, the participants also indicated and described information needs related to mental health, maternal health, and wellbeing, which were also common topics in previous studies with Persian-speaking participants as minorities in different countries (Lee et al., 2013; Raman, Wood, Webber, Taylor, & Isaacs, 2009; Shawyer et al., 2017).

Most of the participants mentioned that the language barrier had a significant impact on how they select and choose health-related information sources and what health-related information and services they used during the outbreak. Persian-speaking individuals living in Finland reported that they mostly prefer friends, family members, and media sources (particularly social media platforms) for obtaining health-related information during the first wave of COVID-19. Similarly, studies with Persian-speaking individuals living in their native countries showed that the same sources were used for information during the outbreak (Maleki et al., 2021; Mousavi et al., 2021; Soleymani et al., 2021). Participants in this study mentioned using community connections and acquaintances as sources for health-related information seeking, while their counterparts in their native countries reported using other sources, including websites and phone counselling services during the outbreak (Soleymani et al., 2021). Previous studies on information seeking behaviour with Persian-speaking participants show that they, much like our participants, use acquaintances and medical professionals as common information sources (De Anstiss & Ziaian, 2009; Slewa-Younan et al., 2017).

Most participants argued that they faced large amounts of false information during the outbreak, and they mentioned different approaches to evaluate the reliability of the information ranging from asking their relatives, friends, or co-workers to checking different information sources. Also, Persian-speaking individuals living in their home countries mentioned issues related to false rumours, misinformation and anti-information, large amounts of information, the anonymity of information resources in social networks, and poor performance of the state media (Soleymani et al., 2021). Many participants expressed different healthcare providers' communication issues, such as confusing health-related information, confusing rules and regulations, and outdated information, while findings of a previous study were related to attitudes and behavioural aspects of the communication with healthcare providers (Barkensjö et al., 2018).

The participants in the present study obtained information passively through two channels: community or network of support (family members, friends, and colleagues), and health promotional and educational programmes (shared through social media, mobile messaging applications, the internet, and emails). These findings are consistent with results from previous studies with Persian-speaking participants, which might be a result of the level health literacy, and cultural preference to seek health-related information in the first hand through other people (e.g. Cultural Atlas, 2022; Nickerson et al., 2020; Sadeghi et al., 2017; Wojcieszak, Smith, & Enayat, 2013). The participants also mentioned that the formats of presenting health-related information such as the language of information, infographics, and the information made accessible through mobile applications significantly influenced their passive receipt of health-related information. Previous studies on information seeking behaviour with Persian-speaking participants highlighted the role influence of interactive talks or presentations, written material, and audio-visual and web-based materials as preferred formats for passive health-related information reception among this minority group (Lee et al., 2013).

Similar to previous studies, the results of the current research showed that factors including segregation, healthcare provider communication issues and psychological factors have a significant impact on Persian-speakers' information seeking activities (Barkensjö et al., 2018; Due, Aldam, & Ziersch, 2020; Ichikawa et al., 2006; Schock,

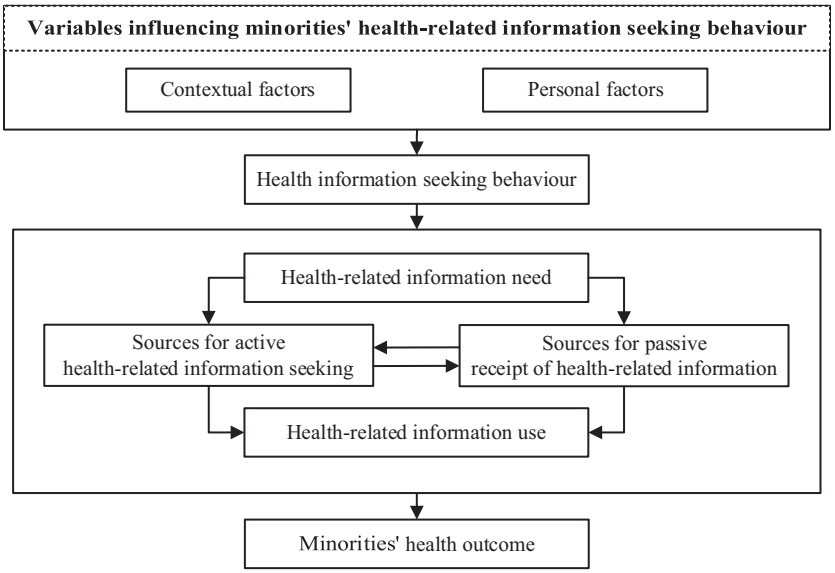

Fig. 1. A proposed health model based on the expanded Longo model.

Rosner, & Knaevelsrud, 2015; Ziersch et al., 2020). However, the findings revealed that the COVID-19 outbreak, as an exceptional and stressful situation, has had a significant impact on how attitudes, behaviours, and inclinations towards informal information, behavioural or emotional issues, cognitive ability to evaluate reliability of health-related information, and false information shape the information seeking activities of this particular minority.

Due to the impact of the outbreak on individuals' lives, participants in the study were mainly interested in accessing health-related information related to COVID-19 and their own wellbeing. Some participants mentioned strong needs for information and services related to mental and psychological health, rooting from uncertainty and the stressful situation during the outbreak. However, there were mismatches between the participants' reported health-related needs and the health-related information or services they received or used during the outbreak. Although the previous studies on Persian-speaking individuals report use of mental health information and services, (Crepet et al., 2017; Misra, Connolly, & Majeed, 2006; Shawyer et al., 2017; Strijk et al., 2011; Toar, O'Brien, & Fahey, 2009), the current study did not find such practice.

The participants in this study reported that they managed to boost their health-related information seeking outcomes when they received reliable health-related information about improving their personal health. They also mentioned that they managed to become aware of the factors influencing their individual or household level health, when reliable health-related information was available in different languages, the information was provided in appropriate formats, and when they received reliable information through reliable sources. These results support similar findings mentioned in previous studies on Persian-speaking individuals living abroad (Barkensjö et al., 2018; Due et al., 2020; Ichikawa et al., 2006; Schock et al., 2015; Ziersch et al., 2020).

The participants in this study sought health-related information mostly in English or their native language and mostly preferred individuals as information sources. This is most likely because of the language barriers and integration issues, which significantly influence how and what health-related information they could seek and use while living in Finland, particularly during the coronavirus outbreak. Therefore, the present study suggests that along with multilingual support for health-related information during exceptional times, it is necessary to invest more in integration programs to help minorities make strong connections with local people and utilize different available media sources, such as social media, to engage in better health-related communication during times of risk, like pandemics.

5.1. Limitations

This study has some limitations. As this study was conducted during a lockdown, people were mostly staying at home, because all of their community activities were closed. As such, it was challenging to recruit a larger number of people for the interviews. However, the researchers believe the number of participants in this study was relatively sufficient to obtain new knowledge. Moreover, conducting face-to-face interviews was not possible due to the same reason or the lack of willingness to have in-person interviews. Therefore, the results of this study may not be generalized to other contexts as the number of participants with different residency grounds and length of living in Finland was limited and the researchers were not able to randomly recruit all groups of Persian-speaking minorities living in Finland. These could include participants (openly) belonging to a sexual minority or participant with more background diversity. Currently, all the participants in this research belong to the first generation of Persian-speaking immigrants living in Finland. It is essential to acknowledge that the findings of this study, due to the limited number of participants, may not represent all possible health-related information seeking issues of the studied minorities.

6. Conclusion

This study provides new knowledge on the health-related information seeking behaviour of minorities, specifically about Persian-speaking individuals living in Finland during the outbreak of COVID-19. By using the original Longo model and proposing an extended health model, the results identify influential factors and barriers in relation to the process of seeking health-related information. The findings of this research indicate that the healthcare authorities should pay attention to the differences between health information needs and actual health information use of minorities compared to native individuals, and the reasons for such differences. The study shows the importance of studying the relationship between ethnic and minority groups and their preferences related to information needs, use of sources, information seeking behaviour, barriers and factors influencing their health outcomes in Finland. This research highlights different factors influencing the process of seeking health-related information. However, it is essential to emphasize the importance of language barriers, information source availability, awareness about Finnish (or other national) healthcare structures and functions, and provision of health-related information and services, such as those related to mental and psychological health, for this specific minority group during the COVID-19 outbreak.

Ethics approval and consent to participate

The study was performed in accordance with the examination and approval statements by the Board of research ethics at Åbo Akademi. The participants gave informed consent prior to participation.

CRediT authorship contribution statement

Hamed Ahmadinia: Conceptualisation, Methodology, Conducting interviews in Persian language, Transcribing interviews in Persian language, Translating the interviews into English language, formal analysis, investigation, data curation, writing - original draft, writing - review & editing. **Kristina Eriksson-Backa**: Conceptualization, Methodology, Formal analysis, Investigation, Writing – original draft, Writing – review & editing. **Shahrokh Nikou**: Conceptualization, Methodology, Formal analysis, Investigation, Writing – original draft, Writing – review & editing.

Declaration of competing interest

None of the authors have any conflicts of interest.

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References

Allington, D., Duffy, B., Wessely, S., Dhavan, N., & Rubin, J. (2021). Health-protective behaviour, social media usage and conspiracy belief during the COVID-19 public health emergency. *Psychological Medicine, 51*, 1763–1769. https://doi.org/10.1017/S003329172000224X

Alsan, M., Stanford, F. C., Banerjee, A., Breza, E., Chandrasekhar, A. G., Eichmeyer, S., Goldsmith-Pinkham, P., Ogbu-Nwobodo, L., Olken, B. A., Torres, C., Sankar, A., Vautrey, P.-L., & Duflo, E. (2021). Comparison of knowledge and information-seeking behaviour after general COVID-19 public health messages and messages tailored for Black and Latinx communities: A randomized controlled trial. *Annals of Internal Medicine, 174*, 484–492. https://doi.org/10.7326/M20-6141

Barkensjö, M., Greenbrook, J. T., Rosenlundh, J., Ascher, H., & Elden, H. (2018). The need for trust and safety inducing encounters: A qualitative exploration of women's experiences of seeking perinatal care when living as undocumented migrants in Sweden. *BMC Pregnancy and Childbirth, 18*(1). https://doi.org/10.1186/s12884-018-1851-9

Barnes, D. M., Harrison, C., & Heneghan, R. (2004). Health risk and promotion behaviours in refugee populations. *Journal of Health Care for the Poor and Underserved, 15*, 347–356. https://doi.org/10.1353/hpu.2004.0034

Bates, M. J. (2015). Information behaviour. In *Encyclopedia of library and information sciences* (3rd ed., pp. 2381–2391). Boca Raton: CRC press. https://doi.org/10.1081/E-ELIS3-120043263.

Beeman, W. O. (2005). Persian. In *Dari and Tajik in Central Asia*. National Council for Eurasian and East European Research. Retrieved February 12, 2022, from https://www.ucis.pitt.edu/nceeer/2007_817-17g_Beeman.pdf.

Bodkin, C., & Miaoulis, G. (2007). Ehealth information quality and ethics issues: An exploratory study of consumer perceptions. *International Journal of Pharmaceutical and Healthcare Marketing, 1*(1), 27–42. https://doi.org/10.1108/17506120710740261

Bronfman, N., Repetto, P., Cordón, P., Castañeda, J., & Cisternas, P. (2021). Gender differences on psychosocial factors affecting COVID-19 preventive behaviours. *Sustainability, 13*, 6148. https://doi.org/10.3390/su13116148

Byrow, Y., Pajak, R., McMahon, T., Rajouria, A., & Nickerson, A. (2019). Barriers to mental health help-seeking amongst refugee men. *International Journal of Environmental Research and Public Health, 16*, 2634. https://doi.org/10.3390/ijerph16152634

Case, D. O., & Given, L. M. (2016). *Looking for information: A survey of research on information seeking, needs, and behaviour* (4th ed.). Emerald Group Publishing (Studies in Information).

Chu, L., Fung, H. H., Tse, D. C., Tsang, V. H., Zhang, H., & Mai, C. (2021). Obtaining information from different sources matters during the COVID-19 pandemic. *The Gerontologist, 61*, 187–195. https://doi.org/10.1093/geront/gnaa222

Crepet, A., Rita, F., Reid, A., Van den Boogaard, W., Deiana, P., Quaranta, G., Barbieri, A., Bongiorno, F., & Di Carlo, S. (2017). Mental health and trauma in asylum seekers landing in Sicily in 2015: A descriptive study of neglected invisible wounds. *Conflict and Health, 11*(1), 1–11. https://doi.org/10.1186/s13031-017-0103-3

Cristea, V., Dub, T., Luomala, O., & Sivelä, J. (2020). COVID-19 behavioural insights study: Preliminary findings from Finland, April–May 2020. *medRxiv*. https://doi.org/10.1101/2020.10.11.20210724

Cultural Atlas. (2022). Iranian culture. Retrieved 28 April 2022 from http://culturalatlas.sbs.com.au/iranian-culture/iranian-culture-family.

Dadaczynski, K., Okan, O., Messer, M., Leung, A. Y., Rosário, R., Darlington, E., & Rathmann, K. (2021). Digital health literacy and web-based information-seeking behaviors of university students in Germany during the COVID-19 pandemic: Cross-sectional survey study. *Journal of Medical Internet Research, 23*(1), Article e24097. https://doi.org/10.2196/24097

De Anstiss, H., & Ziaian, T. (2009). Mental health help-seeking and refugee adolescents: Qualitative findings from a mixed-methods investigation. *Australian Psychologist, 45*(1), 29–37. https://doi.org/10.1080/00050060903262387

Due, C., Aldam, I., & Ziersch, A. (2020). Understanding oral health help-seeking among Middle Eastern refugees and asylum seekers in Australia: An exploratory study. *Community Dentistry and Oral Epidemiology, 48*, 188–194. https://doi.org/10.1111/cdoe.12524

Dutta, R. (2009). Information needs and information-seeking behaviour in developing countries: A review of the research. *The International Information and Library Review, 41*(1), 44–51. https://doi.org/10.1080/10572317.2009.10762796

Ebrahim, A. H., Saif, Z. Q., Buheji, M., AlBasri, N., Al-Husaini, F. A., & Jahrami, H. (2020). COVID-19 information-seeking behaviour and anxiety symptoms among parents. *OSP Journal of Health Care and Medicine, 1*(1), 1–9.

Ecker, U. K., Lewandowsky, S., Cook, J., Schmid, P., Fazio, L. K., Brashier, N., Kendeou, P., Vraga, E. K., & Amazeen, M. A. (2022). The psychological drivers of misinformation belief and its resistance to correction. *Nature Reviews Psychology, 1*(1), 13–29. https://doi.org/10.1038/s44159-021-00006-y

Eriksson-Backa, K. (2008). Access to health information: Perceptions of barriers among elderly in a language minority. *Information Research, 13*(4), 13–14. http://InformationR.net/ir/13-4/paper368.html.

Eriksson-Backa, K. (2010). Elderly people, health information, and libraries: A small-scale study on seniors in a language minority. *International Journal of Libraries and Information Studies, 60*(2), 181–194. https://doi.org/10.1515/libr.2010.016

Eriksson-Backa, K. (2020). Views on covid-19 information: Preliminary results of free association in an online survey. *Informaatiotutkimus, 39*(2–3), 54–59. https://doi.org/10.23978/inf.98616

Farooq, A., Laato, S., Najmul Islam, A. K. M., & Isoaho, J. (2021). Understanding the impact of information sources on covid-19 related preventive measures in Finland. *Technology in Society, 65*, Article 101573. https://doi.org/10.1016/j.techsoc.2021.101573

Freimuth, V. S., Stein, J. A., & Kean, T. J. (1989). *Searching for health information: The cancer information service model*. University of Pennsylvania Press.

Gottfredson, L. S. (1997). Foreword to "intelligence and social policy". *Intelligence, 24*(1), 1–12. https://doi.org/10.1016/s0160-2896(97)90010-6

Gu, Q., & Mendonça, D. (2008). Group information-seeking behavior in emergency response. In I. Linkov, E. Ferguson, & V. S. Magar (Eds.), *Real-time and deliberative decision making* (pp. 55–76). Netherlands: Springer. https://doi.org/10.1007/978-1-4020-9026-4_4.

Hampshire, K. R., Porter, G., Owusu, S. A., Tanle, A., & Abane, A. (2011). Out of the reach of children? Young people's health-seeking practices and agency in Africa's newly emerging therapeutic landscapes. *Social Science and Medicine, 1982*(73), 702–710. https://doi.org/10.1016/j.socscimed.2011.06.035

Ichikawa, M., Nakahara, S., & Wakai, S. (2006). Effect of post-migration detention on mental health among Afghan asylum seekers in Japan. *Australian and New Zealand Journal of Psychiatry, 40*, 341–346. https://doi.org/10.1080/j.1440-1614.2006.01800.x

Islamoska, S., Petersen, J. H., Benfield, T., & Norredam, M. (2022). Socioeconomic and demographic risk factors in COVID-19 hospitalization among immigrants and ethnic minorities. *European Journal of Public Health, 32*, 302–310. https://doi.org/10.1093/eurpub/ckab186

Jang, S. H., & Jung, G. (2021). How does covid-19 differ from the flu/cold? A study of multilevel information seeking among Korean immigrant women in the US. *American Journal of Health Behaviour, 45*, 665–676. https://doi.org/10.5993/AJHB.45.4.6

Jervelund, S. S., Nordheim, O., Stathopoulou, T., & Eikemo, T. A. (2019). Non-communicable diseases among refugee claimants in Greek refugee camps: Are their health-care needs met? *Journal of Refugee Studies, 32*(Special_Issue_1), i36–i51. https://doi.org/10.1093/jrs/fez064

Johnson, J. D., & Case, D. O. (2012). *Health information seeking*. New York: Peter Lang.

Kamaraju, S., Olson, J., DeNomie, M., Visotcky, A., Banerjee, A., Asan, O., … Stolley, M. (2019). Community breast health education for immigrants and refugees: Lessons learned in outreach efforts to reduce cancer disparities. *Journal of Cancer Education, 34*, 1092–1096. https://doi.org/10.1007/s13187-018-1412-y

Kang, C., Tomkow, L., & Farrington, R. (2019). Access to primary health care for asylum seekers and refugees: A qualitative study of service user experiences in the UK. *The British Journal of General Practice: The Journal of the Royal College of General Practitioners, 69*(685), e537–e545. https://doi.org/10.3399/bjgp19X701309

Karim, M., Singh, R., & Widén, G. (2021). Dealing with the covid-19 infodemic: Understanding young people's emotions and coping mechanisms in Finland and the United States. *Nordic Journal of Library and Information Studies, 2*(1), 38–57. https://doi.org/10.7146/njlis.v2i1.125220

Keygnaert, I., Vettenburg, N., Roelens, K., & Temmerman, M. (2014). Sexual health is dead in my body: participatory assessment of sexual health determinants by refugees, asylum seekers and undocumented migrants in Belgium and The Netherlands. *BMC Public Health, 14*, 416. https://doi.org/10.1186/1471-2458-14-416

Khan, J., & Arif, M. S. (2014). *Investigating the behaviour intention to use e-health services by Swedish immigrants*. Örebro University School of Business. Project Work (IK4002). Retrieved May 03, 2022, from http://www.diva-portal.org/smash/get/diva2:770717/FULLTEXT01.pdf.

Kim, H. K., Ahn, J., Atkinson, L., & Kahlor, L. A. (2020). Effects of covid-19 misinformation on information seeking, avoidance, and processing: A multicounty comparative study. *Science Communication, 42*, 586–615. https://doi.org/10.1177/1075547020959670

Kor, P., Leung, A., Parial, L. L., Wong, E., Dadaczynski, K., Okan, O., … Molassiotis, A. (2021). Are people with chronic diseases satisfied with the online health information related to covid-19 during the pandemic? *Journal of Nursing Scholarship: An Official Publication of Sigma Theta Tau International Honor Society of Nursing, 53*(1), 75–86. https://doi.org/10.1111/jnu.12616

Lachlan, K. A., Hutter, E., Gilbert, C., & Spence, P. R. (2021). From what I've heard, this is bad: An examination of Americans' source preferences and information seeking during the covid-19 pandemic. *Progress in Disaster Science, 9*, Article 100145. https://doi.org/10.1016/j.pdisas.2021.100145

Lambert, S. D., & Loiselle, C. G. (2007). Health information seeking behaviour. *Qualitative Health Research, 17*, 1006–1019. https://doi.org/10.1177/1049732307305199

Landi, G., Pakenham, K. I., Boccolini, G., Grandi, S., & Tossani, E. (2020). Health anxiety and mental health outcome during covid-19 lockdown in Italy: The mediating and moderating roles of psychological flexibility. *Frontiers in Psychology, 11*, 2195. https://doi.org/10.3389/fpsyg.2020.02195

Lang, R., Benham, J. L., Atabati, O., Hollis, A., Tombe, T., Shaffer, B., … Oxoby, R. J. (2021). Attitudes, behaviors, and barriers to public health measures for covid-19: A survey to inform public health messaging. *BMC Public Health, 21*(1), 1–15. https://doi.org/10.1186/s12889-021-10790-0

Lau, J. T. F., Yang, X., Tsui, H. Y., & Kim, J. H. (2005). Impacts of SARS on health-seeking behaviours in general population in Hong Kong. *Preventive Medicine, 41*, 454–462. https://doi.org/10.1016/j.ypmed.2004.11.023

Lee, S. K., Sulaiman-Hill, C., & Thompson, S. C. (2013). Providing health information for culturally and linguistically diverse women: Priorities and preferences of new migrants and refugees. *Health Promotion Journal of Australia, 24*(2), 98–103. https://doi.org/10.1071/HE12919

Lloyd, A., & Hicks, A. (2021). Contextualising risk: The unfolding information work and practices of people during the covid-19 pandemic. *Journal of Documentation, 77*, 1052–1072. https://doi.org/10.1108/JD-11-2020-0203

Lohiniva, A. L., Dub, T., Hagberg, L., & Nohynek, H. (2021). Learning about covid-19-related stigma, quarantine and isolation experiences in Finland. *PLoS One, 16*(4), Article e0247962. https://doi.org/10.1371/journal.pone.0247962

Longo, D. R., Schubert, S. L., Wright, B. A., LeMaster, J., Williams, C. D., & Clore, J. N. (2010). Health information seeking, receipt, and use in diabetes self-management. *The Annals of Family Medicine, 8*, 334–340. https://doi.org/10.1370/afm.1115

Maleki, A., Ashtari, M., Molaie, P., & Youseflu, S. (2021). Influential factors of general anxiety disorder among Iranian pregnant women during the second peak of covid-19 pandemic. *Psychology, Health & Medicine, 27*(2), 421–427. https://doi.org/10.1080/13548506.2021.1934497

Mangrio, E., Carlson, E., & Zdravkovic, S. (2020). Newly arrived refugee parents in Sweden and their experience of the resettlement process: A qualitative study. *Scandinavian Journal of Public Health, 48*(7), 699–706. https://doi.org/10.1177/1403494819893535

Marquardt, L., Kraemer, A., Fischer, F., & Pruefer-Kraemer, L. (2016). Health status and disease burden of unaccompanied asylum-seeking adolescents in Bielefeld, Germany:

Cross-sectional pilot study. *Tropical Medicine & International Health, 21*, 210–218. https://doi.org/10.1111/tmi.12649
McColl, H., & Johnson, S. (2006). Characteristics and needs of asylum seekers and refugees in contact with London community mental health teams – A descriptive investigation. *Social Psychiatry and Psychiatric Epidemiology, 41*, 789–795. https://doi.org/10.1007/s00127-006-0102-y
Mills, A. M., & Todorova, N. T. (2016). An integrated perspective on factors influencing online health-information seeking behaviours. In *Proceedings of the 27th Australasian Conference on Information Systems* (ACIS 2016), paper 83 (4–6 December 2016). Wollongong, Australia https://aisel.aisnet.org/acis2016/83.
Misra, T., Connolly, A., & Majeed, A. (2006). Addressing mental health needs of asylum seekers and refugees in a London borough: Epidemiological and user perspectives. *Primary Health Care Research & Development, 7*, 241–248. https://doi.org/10.1191/1463423606pc293oa
Molavi, H., Sharifi, H., Delavari, S., & Sharifi, H. M. (2020). Public adults information seeking behaviors during early weeks of covid-19 epidemic: Early lessons for improvement of epidemic communication. *Shiraz E-Medical Journal, 21*(12), Article e107487. https://doi.org/10.5812/semj.107487
Montesi, M. (2021). Human information behaviour during the covid-19 health crisis. A literature review. *Library & Information Science Research, 43*, Article 101122. https://doi.org/10.1016/j.lisr.2021.101122
Morgan, G., Melluish, S., & Welham, A. (2017). Exploring the relationship between postmigratory stressors and mental health for asylum seekers and refused asylum seekers in the UK. *Transcultural Psychiatry, 54*, 653–674. https://doi.org/10.1177/1363461517737188
Mousavi, S. H., Delshad, M. H., Acuti Martellucci, C., Bhandari, D., Ozaki, A., Pourhaji, F., … Sah, R. (2021). Community behavioral and perceived responses in the covid-19 outbreak in Afghanistan: A cross-sectional study. In *Disaster medicine and public health preparedness* (pp. 1–7). Advance online publication https://doi.org/10.1017/dmp.2021.135.
Mulé, N. J. (2021). Mental health issues and needs of LGBTQ+ asylum seekers, refugee claimants and refugees in Toronto, Canada. *Psychology & Sexuality, 1–11*. https://doi.org/10.1080/19419899.2021.1913443
Newton, A., Awuviry-Newton, K., Oppong Nkansah, J., & Abekah-Carter, K. (2022). Understanding older adults' functioning and health-seeking behaviour during the covid-19 pandemic in Ghana: A descriptive qualitative study. *Health & Social Care in the Community, 30*(3), 823–831. https://doi.org/10.1111/hsc.13452
Nguyen, H. C., Nguyen, M. H., Do, B. N., Tran, C. Q., Nguyen, T. T., Pham, K. M., … Duong, T. V. (2020). People with suspected COVID-19 symptoms were more likely depressed and had lower health-related quality of life: The potential benefit of health literacy. *Journal of Clinical Medicine, 9*(4), 1–18. https://doi.org/10.3390/jcm9040965
Nickerson, A., Byrow, Y., Pajak, R., McMahon, T., Bryant, R. A., Christensen, H., & Liddell, B. J. (2020). "Tell your story": A randomized controlled trial of an online intervention to reduce mental health stigma and increase help-seeking in refugee men with posttraumatic stress. *Psychological Medicine, 50*, 781–792. https://doi.org/10.1017/S0033291719000606
Onchonga, D., Alfatafta, H., Ngetich, E., & Makunda, W. (2021). Health-seeking behaviour among pregnant women during the covid-19 pandemic: A qualitative study. *Heliyon, 7*(9), e07972. https://doi.org/10.1016/j.heliyon.2021.e07972
OSF. (2021). Population by language on 31 December. Statistics Finland. Retrieved May 03, 2022, from https://www.stat.fi/tup/suoluk/suoluk_vaesto_en.html#Population%20by%20language%20on%2031%20December.
Pálsdóttir, Á. (2011). Opportunistic discovery of information by elderly Icelanders and their relatives. *Information Research, 16*(3). paper 485. Retrieved February 12, 2022, from http://InformationR.net/ir/16-3/paper485.html.
Qiu, W., Chu, C., Mao, A., & Wu, J. (2018). The impacts on health, society, and economy of SARS and H7N9 outbreaks in China: A case comparison study. *Journal of Environmental and Public Health, 2710185*. https://doi.org/10.1155/2018/2710185
Raman, S., Wood, N., Webber, M., Taylor, K. A., & Isaacs, D. (2009). Matching health needs of refugee children with services: How big is the gap? *Australian and New Zealand Journal of Public Health, 33*, 466–470. https://doi.org/10.1111/j.1753-6405.2009.00431.x
Reisdorf, B., Blank, G., Bauer, J., Cotten, S., Robertson, C., & Knittel, M. (2021). Information seeking patterns and covid-19 in the United States. *Journal of Quantitative Description: Digital Media, 1*, 1–38. https://doi.org/10.51685/jqd.2021.003
Riley, W. J. (2012). Health disparities: Gaps in access, quality and affordability of medical care. *Transactions of the American Clinical and Climatological Association, 123*, 167–174.
Sadeghi, R., Shamsi, M., Baghernezhad Hesary, F., & Momenabadi, V. (2017). Effect of educational intervention based on health promotion model (HPM) on promoting behaviour in safe delivery among Afghani pregnant women refugees in Sirjan, Iran. *Bioscience Biotechnology Research Communications, 10*, 398–403. https://doi.org/10.21786/bbrc/10.3/10
Sanchez-Cao, E., Kramer, T., & Hodes, M. (2013). Psychological distress and mental health service contact of unaccompanied asylum-seeking children. *Child: Care, Health and Development, 39*, 651–659. https://doi.org/10.1111/j.1365-2214.2012.01406.x
Schock, K., Rosner, R., & Knaevelsrud, C. (2015). Impact of asylum interviews on the mental health of traumatized asylum seekers. *European Journal of Psychotraumatology, 6*(1), 26286. https://doi.org/10.3402/ejpt.v6.26286
Sharma, L., Chandrasekaran, A., Boyer, K. K., & McDermott, C. M. (2015). The impact of health information technology bundles on hospital performance: An econometric study. *Journal of Operations Management, 41*(1), 25–41. https://doi.org/10.1016/j.jom.2015.10.001
Shawyer, F., Enticott, J. C., Block, A. A., Cheng, I.-H., & Meadows, G. N. (2017). The mental health status of refugees and asylum seekers attending a refugee health clinic including comparisons with a matched sample of Australian-born residents. *BMC Psychiatry, 17*(1), 1–12. https://doi.org/10.1186/s12888-017-1239-9
Skogberg, N., Koponen, P., Lily, E., Austero, S., Achame, S., & Castaneda, A. (2021). *Access to information, preventive measures and working conditions during the coronavirus epidemic: Findings of the population-based MigCOVID survey among persons who have migrated to Finland*. Helsinki: THL. Discussion paper = Working paper: 2021_008. Retrieved November 11, 2020, from http://urn.fi/URN:ISBN:978-952-343-632-9.
Skulmowski, A., & Standl, B. (2021). Covid-19 information fatigue? A case study of a German university website during two waves of the pandemic. *Human Behaviour and Emerging Technologies, 3*, 350–356. https://doi.org/10.1002/hbe2.260
Slewa-Younan, S., Yaser, A., Guajardo, M. G. U., Mannan, H., Smith, C. A., & Mond, J. M. (2017). The mental health and help-seeking behaviour of resettled Afghan refugees in Australia. *International Journal of Mental Health Systems, 11*(1), 1–8. https://doi.org/10.1186/s13033-017-0157-z
Soleymani, M. R., Esmaeilzadeh, M., Taghipour, F., & Ashrafi-rizi, H. (2021). Covid-19 information seeking needs and behaviour among citizens in Isfahan, Iran: A qualitative study. *Health Information and Libraries Journal, 0*, 1–12. https://doi.org/10.1111/hir.12396
Soroya, S. H., Farooq, A., Mahmood, K., Isoaho, J., & Zara, S. E. (2021). From information seeking to information avoidance: Understanding the health information behavior during a global health crisis. *Information Processing & Management, 58*, Article 102440. https://doi.org/10.1016/j.ipm.2020.102440
Stanborough, R. J. (2020). How is a pandemic different from an epidemic?. In *Healthline*. Retrieved May 03, 2022, from https://www.healthline.com/health/pandemic-vs-epidemic.
Strijk, P. J., van Meijel, B., & Gamel, C. J. (2011). Health and social needs of traumatized refugees and asylum seekers: An exploratory study. *Perspectives in Psychiatric Care, 47*(1), 48–55. https://doi.org/10.1111/j.1744-6163.2010.00270.x
Tan, H. M. J., Tan, M. S., Chang, Z. Y., Tan, K. T., Ee, G. L. A., Ng, C. C. D., … Tan, N. C. (2021). The impact of covid-19 pandemic on the health-seeking behaviour of an Asian population with acute respiratory infections in a densely populated community. *BMC Public Health, 21*(1), 1–10. https://doi.org/10.1186/s12889-021-11200-1
THL. (2020). *Keep up to date with the latest news from the social welfare and health care sector*. Finnish Institute for Health and Welfare (THL). Retrieved May 03, 2022, from https://thl.fi/en/web/thlfi-en/whats-new/news-application.
Toar, M., O'Brien, K. K., & Fahey, T. (2009). Comparison of self-reported health & healthcare utilisation between asylum seekers and refugees: An observational study. *BMC Public Health, 9*(1), 1–10. https://doi.org/10.1186/1471-2458-9-214
Wachter, R. (2016). *Making IT work: Harnessing the power of health information technology to improve care in England*. London, UK: Department of Health. Retrieved May 03, 2022 from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/550866/Wachter_Review_Accessible.pdf.
Wilson, T. D. (1997). Information behaviour: An interdisciplinary perspective. *Information Processing & Management, 33*, 551–572. https://doi.org/10.1016/s0306-4573(97)00028-9
Wojcieszak, M., Smith, B., & Enayat, M. (2013). Finding a way – How Iranians reach for news and information. In *Iran Media Program*. Retrieved April 30, 2022 from https://repository.upenn.edu/iranmediaprogram/3/.
Yip, M. P., Ong, B., Painter, I., Meischke, H., Calhoun, B., & Tu, S. P. (2009). Information-seeking behaviours and response to the H1N1 outbreak in Chinese limited-English proficient individuals living in King County, Washington. *American Journal of Disaster Medicine, 4*, 353–360. https://doi.org/10.5055/ajdm.2009.0048
Ziersch, A., Due, C., & Walsh, M. (2020). Discrimination: A health hazard for people from refugee and asylum-seeking backgrounds resettled in Australia. *BMC Public Health, 20*(1), 1–14. https://doi.org/10.1186/s12889-019-8068-3

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