



Digital divides, the Internet and social media uses among Afghans in Iran

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ABSTRACT

The studies on forced migrants' digitally mediated communication and transnational practices have not sufficiently addressed contexts in which migrants are imposed with strong regulations on their physical mobility and information and communication technology (ICT), Internet, and social media uses. This article studied Internet and social media uses, digital divides (access, use, and the impact of Internet and social media), and digital transnational practices among Afghans in Iran. More than three million Afghans live in different legal, economic, and social positions in Iran. The analysis was based on surveys with 2003 Afghan refugees, other legally authorized Afghan immigrants, and undocumented Afghan migrants in Iran. National authorities limited Afghans' physical mobility within, from, and to Iran as well as constrained Afghans' possession of ICT devices and their capability to use the Internet, including social media. To overcome physical immobility, Afghans developed transnational digital practices. Those Afghans who considered Europe as their potential outmigration destination were much more actively digitally connected than those interested in migrating to Afghanistan or remaining in Iran. Digital divides exist among Afghans in Iran, but these narrowed during Afghans' stay in Iran.

1. Introduction

The discussion of digital divides – disparities in the access, use, and impact of information and communication technologies (ICTs), the Internet, and social media – and their persistence in forced migration – the involuntary or coerced movement of people away from their home regions or countries – increased in the 2010s. Scholars and organizations dealing with refugees, asylum seekers, and undocumented migrants noted how the use of mobile phones, the Internet, and social media became common among these forced migrants (i.e., people who involuntarily left their countries or home regions) [1–5]. The digital literacy of these marginalized groups grew despite the lack of specific digital inclusion policies to support their confident, safe, and effective use of related devices [see Ref. [6]].

The growing evidence of forced migrants' digitally mediated communication (finding, analyzing, storing, creating, communicating, exchanging, and disseminating personal and other information with ICTs) has increased scholarly discussion not only about the uses of supportive devices but also about their impacts. These include migrants' digitally mediated transnational dimensions, in which migrants in one country connect directly to other people and places across other

countries. Research has been conducted on how the Internet and using social media connected to these migrants' physical and digital mobility, other transnational practices, and transnationalism (i.e., emerging hybrid identities and ways of life among those having digital transnational connections) [7–10].

Most studies have focused on situations in which forced migrants have been able to access ICTs, the Internet, and social media relatively easily and use their own devices (smartphones, laptops, or desktop computers) with SIM cards or WLAN connections. However, in many locations, authorities still control and create obstacles for forced migrants' digital access and uses [see Ref. [11]], as well as for their physical mobility. Such involvement impacts forced migrants, their communication and information gathering as well as how they connect to people and places in the countries in which they currently reside, their countries of origin (and possible return), as well as the country or countries to which they aspire to further migrate to. This creates dependable instability in their digital uses and practices for overcoming challenges in related technology maintenance [see Ref. [12]].

This article explored Internet and social media uses, digital divides (access, use, and the impact of the Internet and social media), and digitally mediated transnational practices among Afghans in Iran. The

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theme followed the most frequently used conceptualization of digital divides [see Ref. [13]]. The objective was to provide the first-ever comprehensive analysis of this theme regarding Afghans in Iran, as well as to study digital divides in the contexts where strong regulations are imposed on migrants' physical and digital mobility. The main research questions were as follows: (1) What are Afghans' uses of ICT, the Internet, and social media in Iran? (2) What kind of digital divides exist among Afghans in Iran? and (3) What kind of digitally mediated transnational practices emerge through Afghans' Internet and social media uses in Iran? The research questions were derived from earlier research regarding the conceptualization of digital divides [for example, see Ref. [13]] and the authors' earlier studies on digital divides in the context of forced migration [3,4]. The analysis highlights how in the context of forced migration, it is still very relevant to study migrants' access to and use of the Internet and social media (digital divides 1 and 2), as well as what impacts (digital divide 3) emerge from their uses and non-uses.

Contextualization is necessary when studying forced migrants and their physical and digital mobility, and the same is true for Afghans in Iran as well. A particular context exists for Afghans' digital divides, Internet and social media uses, and digitally mediated transnational practices in Iran.

Firstly, in 2019, there were 3–4 million Afghans in Iran in different legal, economic, and social positions. Of around 1.1 million authorized Afghan immigrants in the country, 780,000 were refugees having such a status from the national authorities of Iran and accredited by the United Nations High Commissioner for Refugees [15]. Among them, there were people from many generations: from those who had arrived in the country in the late 1970s to those who were born there in the 2010s. After 2003, arriving Afghans could not gain refugee status in Iran, but refugees' children still obtained it [16]. The Internet or mobile phones did not exist when many of the Afghanistan-born current refugees came to the country, whereas the situation was different for those born later in Iran. Until recently, an overwhelming majority of Afghan refugees have remained only in Iran because of the strong restrictions on their physical mobility. Refugees had restrictions for possessing smartphones (defined as portable device combining mobile telephone and computing functions) with Internet access, and some lived in areas without access to mobile network. Furthermore, in Iran, there were 311,000 non-refugee Afghans – for example students, employees, and spouses – with valid Iranian long-term visas in Afghan passports [15]. When they had arrived, the smartphone and the Internet use were already widely distributed in Iran. They were not restricted from possessing smartphones with Internet access and lived in areas covered by mobile network.

In Iran were another 1.1 million “tolerated” Afghan immigrants, i.e. they did not have work permits but the Iranian authorities tolerated their presence in the country. Around 275,000 of them were former undocumented migrants registered in the country in the 2010s as family passport holders who had received residence and work permits [15]. There were also 800,000 registered undocumented Afghans who were counted and registered in 2016–2017. Earlier they had restrictions for possessing smartphones with an Internet access, but almost all of them lived in areas with mobile network. They did not have work permits, but the Iranian authorities tolerated their presence in the country.

In Iran, there was also an annually varying number of 0.8–1.8 million undocumented Afghan migrants with very limited rights. They continued to have restrictions for possessing smartphones with Internet access, and some resided in areas without good mobile network. Many of them remained in the country for months or years circulated back and forth between Afghanistan and Iran. Some Afghans used Iran as a transit country on their asylum-related journeys to the European Union (EU). Every year, hundreds of thousands of undocumented migrants are expelled by force from Iran to Afghanistan [16,17]. However, altogether a few tens of thousands of Afghans have gained Iranian citizenship, and have thus the same rights for possessing a smartphone with Internet

access as Iranians.

Secondly, the national authorities regulate the overall uses of the Internet and social media in Iran and impose limitations and suggestions for online uses. Certain politically sensitive topics, images, and words are banned from the Internet or their use has been made very difficult. This regards also many social media applications such as Facebook, Instagram, and YouTube. For example, the non-use of Facebook is suggested by the authorities [see Ref. [18]]. In July 2020, about 18% of people in Iran used Facebook, whereas Pinterest or Instagram were more commonly used (40% and 27% respectively), and fewer people had Twitter or YouTube accounts (11% and 3% respectively) [19]. Furthermore, the Internet service providers need to be approved by the national authorities, who can also suspend the virtual private network (VPN) providers or the Internet use or specific social network services (such as Instagram or Telegram) and related social media uses temporarily when considered politically sensitive. However, as everywhere in the World Wide Web, digitally skilled people in Iran use alternative channels for communicating through social media and searching information. This overcoming of restrictions requires digital skills that not all Iranians or Afghans possess. For example, many people in Iran have got Facebook accounts by changing their IP addresses with the help of VPNs [18,20,21].

Thirdly, as most of Afghans are foreign nationals in Iran, there are even more physical and digital mobility restrictions for them. Their ability to move, migrate, and communicate over the border is limited. Afghan refugees are allowed to live and move in the country only in certain (non-border) provinces, and their leaving and returning to the country is hindered. Furthermore, until recently, their possibilities to possess land, other property, and having a driver's license, a credit card, a bank account or even a SIM card were restricted [16,22].

2. Digital divides and digitally mediated transnational practices

Digital connections in the world increase year by year. In 2019, mobile phone subscriptions totaled 108% of the world population. In addition, 93% of the world population was covered at least by the 3G mobile-cellular network, 74% had active mobile-broadband subscriptions, and 51% was using the Internet [23]. However, major differences still exist between countries, and even within countries at less advanced levels. For example, as in regard to Iran, the number of mobile phone subscriptions in 2019 was 184% of the population over 15 years old, and in Afghanistan the corresponding number was 107%. In the same year, 87% of the population over 15 years old used the Internet in Iran. The corresponding number was much lower (35%) in Afghanistan [calculated from Refs. [23,24]].

Despite the wide distribution of ICT and the Internet in many countries, geographic and demographic differences exist in the access to and in the use of ICT, the Internet, and social media. The differences include skills, modes, and impacts of their uses [e.g. Refs. [6,25–27]]. In the 2010s, the key reason for the continuing digital divides between countries, regions, and socio-economic groups was financial [28]. The digital divides are approached at three levels: the first-level (access), second-level (resources, skills, and use), and third-level (impact) digital divides [14,29]. Divides exist also regarding people's migration status, i.e. being a permanent original resident, a legally authorized immigrant, or an undocumented migrant, as well as during the different stages of migration journeys [1,3,6,29]. While many people have at least the basic digital access, there are challenges in maintaining this access in changing circumstances. Immigration can also increase the uses of ICT, Internet, and social media, thus contributing to immigrants' integration or transnational practices [8,12,30–32]. In many countries, a major issue is the digital inclusion policy to promote confident, safe, and effective uses of related devices and to reduce digital divides among both citizens and immigrant population [6].

2.1. Forced migrants' access to mobile phone networks and the Internet (first-level digital divide)

The first-level digital divide refers to individuals' access to the mobile phone network and the Internet. The key factors derive both from the socio-economic and political contexts of the country in question. The contexts influence how well and widely the mobile phone and broadband networks cover the country's territory and who can access these networks. Even though the 3G network covers almost the entire inhabited world nowadays, that is not yet the case with the 4G or especially the 5G networks and related devices that facilitate the Internet use with smartphones [22]. Advanced mobile networks are available more commonly in urban rather than rural areas [32–34]. Authorities' imposed Internet-related regulations and policies impact the first-level divide both in authoritarian and more democratic countries [19,35]. Most forced migrants originate from countries that are authoritarian, less developed or both. In these countries, their access to mobile networks has been limited, as is also the case in many contexts during their fragmented journeys [1,3,4].

2.2. Forced migrants' resources and skills regarding ICT, Internet, and social media uses (second-level digital divide)

The second-level digital divide refers to individuals' use and related resources and skills regarding ICT, the Internet, and social media to use them meaningfully. The earlier findings explaining the second-level digital divide were income (per capita) and population education levels [see Refs. [28,30,32,36–38]]. Nowadays these aspects have a less straight-forward causal explanation for this divide because with the growing number of users, the access to the Internet (both networks and devices) is less expensive for individuals. More people, including forced migrants, are able to overcome the lack of individual ownership of devices, required technical capabilities, and foreign language, thus advancing to a level needed for the use of smartphones and their specific applications [1,29]. Devices based on swapping technology, symbols, and applications are easier to use for people with limited education levels, even for those who are illiterate. However, new second-level divides regarding motivation, frequencies, and types of digital uses are emerging [14].

Studies of irregular migration have indicated how in the 2010s the use of ICT, the Internet, and social media have become common among refugees, asylum seekers, and undocumented migrants, sometimes even more than among the citizens of the host countries [3,4]. Many of these people in a very weak economic position could possess at least basic smartphones with prepaid SIM cards and utilize complimentary WLAN connection where possible. An advanced smartphone is a matter of life and death for many forced migrants during their fragmented journeys [7,12,39]. Nevertheless, the narrowing of the second-level digital divide and digital inclusion should not be understood as straightforward tools to get rid of all challenges in the everyday lives of forced migrants.

The older and low-income population is usually more constrained by the second-level digital divide [26,28]. Gender has been found to be more of an indirect factor. Cultural reasons may be behind the restrictions for women's access to the Internet and social media, especially in countries in which women's societal position is weaker, such as in Afghanistan [40,41]. Women in many contexts have fewer rights to make their own decisions, lower education levels and lower employment rates than men, thus having less resources for using advanced mobile devices with sufficient Internet access [42,43]. The gender-based second-level digital divide tends to narrow along different phases of forced migration due to the forced migrants' need to remain more resilient [3,4].

2.3. The impact of ICT, Internet and social media for forced migrants (third-level digital divide)

The third-level digital divide refers to the impact of ICT, the Internet, and social media, or more broadly, digitalization. It is more complex to measure, especially among forced migrants. The impacts of the (non)use of ICT, the Internet, and social media can be direct or indirect, immediate or long-term, individual or collective, positive or negative et cetera. Furthermore, the impacts vary over time, places, and circumstances [14,26]. In sum, what is a positive impact for one person, can be a negative one for another person and an irrelevant to a third person.

The widely distributed ICT, the Internet, and social media impact the migration aspirations and capabilities of forced migrants. Digitally mediated connections alter the fundamentality of physical mobility for social bonding and bridging [see Refs. [44,45]]. The (aspiring) migrants can approach their aspired migration destinations and social networks in the potential destination countries [5]. Digital connections bring about hope and anxiety and enable forced migrants to reorient themselves to particular places and people [46]. They provide unofficial channels for information such as finding a place to stay or work. Forced migrants often have to rely on the Internet's and social media's unauthorized sources to search and receive information and to develop social networks. Dekker and Engbersen [1] stressed that these means helped forced migrants to maintain strong ties with family and friends and develop weaker ties that supported their success and survival on their journey to the destination country. These ties of the networked diaspora allowed also unofficial migrants living around the world to be present in different communities in the other parts of the world [47]. The need to maintain and develop these strong and weak ties [see Ref. [45]] during irregular migration increases the social media use of these migrants [4].

In another moment, contacts can turn out to be harmful. They can expose people to dangerous fake news or enable receiving deceptive or worrying news or being surveilled or caught by the authorities [7,10,11,48,49]. Rumors on social media, misinformation, and fake media news spread quickly among forced migrants and often lead to many negative effects [49]. Many of their decisions later can turn out to be incorrect because of what was considered correct information was, in fact, incorrect. In addition, the use of smart devices, the Internet, and social media may lead to forced migrants ending up being watched by authorities or hostile groups [47,48]. Authorities may also make it more difficult for forced migrants to access the Internet, for example by requiring identification when registering to the mobile phone networks [5,7,29,50].

Digitally mediated bridging and bonding are particularly important when an individual's physical mobility is constrained like among Afghans in Iran. Aspirations and imaginations for physical mobility are fostered by digitally mediated connections. Those capable for digital connections are able to combine their (imagined) country of origin, the presence in the current country of residence, and the future remaining (sometimes involuntarily physically immobilized) in the current country or aspiring, imagining, and perhaps actualizing return migration to the country of origin or on-migrating to a new destination – despite not knowing whether they can move from their current place [51,52]. Many (but not all) forced migrants are in contact with their globally and regionally dispersed networks. This refers to bonding and bridging social relations as well as to receiving information about locations, workplaces, education, housing, and on-migration opportunities elsewhere.

Previous studies show that forced migrants use mobile phones, the Internet and social media in the country of origin to plan and prepare for journeys. The use of these varied during the journey, depending on the possibilities and situations. The use tends to become more common when journeys stop (temporarily) in transit countries or reception centers. Finally, in the destination country, the Internet and social media use becomes even more common. The first- and second-level digital divides thus narrowed among forced migrants [3,4]. Smart devices play a very important role in the success of these journeys [11]. Yüksel [53]

suggested that forced migrants receive necessary information through ICT, the Internet, and social media in situations where it would otherwise be impossible to obtain it, thus supporting the development of their social and cultural capital and strengthening transnational relationships across borders. In certain contexts, these even mobilized their own political activities of various kinds.

Especially in situations when forced migrants cannot or prefer not to migrate further or return, digitally mediated connections over national borders are significant elements in the emergence of transnational connections and practices. Digital connections between the current, former, and other countries can facilitate social bridging among similarly-minded populations across countries [3]. These particular impacts contain hybrid elements and ways of life from many countries and people. These influence on forced migrants' senses of belonging and identities, thus exceeding experiences and practices based only on one place. This may create social distance regarding the former reference group with the same geographical and cultural proveniences.

3. Material and methods

The data for this article consists of responses to a semi-structural survey of 2003 Afghans living in Iran. Of the respondents, 590 (29.5%) were from Tehran, 346 (17.3%) from Isfahan, 240 (12.0%) from Mashhad, and 189 (9.4%) from Kerman, while 96 (4.8%) lived in smaller urban areas and villages in the provinces of Kerman and Razavi Khorasan, and 542 (27.1%) in four guest settlements in different parts of Iran targeted only for Afghan refugees. These guest settlements (in Farsi مردم‌ان‌شهر), sometimes translated in English as guest cities or refugee camps, are compact areas up to a few square kilometers, and they host up to a few thousand Afghan refugees each. The Iranian authorities strictly regulate access to these sites and the residency there. In addition, the telecommunication networks and the access to the Internet are rather limited in these settlements.

Of the respondents, 1207 (60.5%) had a refugee status accredited by the national authorities of Iran and the UNHCR, 445 (22.3%) had another legal authorization by the Iranian authorities to remain in Iran, and 344 (17.2%) were in Iran without legal permission (i.e. they were undocumented migrants). Of the refugee respondents, 542 (44.9%) lived in refugee camps (i.e. guest settlements), 643 (53.3%) in large cities, and 22 (1.8%) lived elsewhere in smaller urban or rural areas. Of the undocumented migrant respondents (344), none lived in guest settlements, 270 (78.5%) lived in large cities, and 74 (21.5%) lived elsewhere in smaller urban or rural areas.

For all Afghan respondents, their current country of residence was Iran – for some it had been already for decades and for others for years or only months. The country of origin among Afghans in Iran is difficult to define [see Ref. [54–56]]. Some respondents were born in Afghanistan, meaning that they were first-generation Afghans in Iran, and for them Afghanistan was their country of birth. For others, only their parent(s) were born in Afghanistan, meaning that they belonged to the second-generation Afghans in Iran [54]. There were also a few third-generation Afghan migrants among the respondents. They were born to parents born in Iran, with grandparents born in Afghanistan.

As regards respondents' gender, 1035 (51.9%) were male and 959 (48.1%) were female. The age structure was as follows: 203 (10.2%) 15–18 years old, 860 (43.1%) 19–29 years old, 655 (32.8%) 30–49 years old, 208 (10.4%) 50–64 years old, and 68 (3.4%) at least 65 years old. Respondents had different educational backgrounds from primary school to a university degree, with 317 (16.1%) having at least attended to university. Of the respondents who had stated their country of birth, 995 (58.2%) were born in Afghanistan and 716 (41.8%) in Iran.

The data was gathered in two phases. Responses from the Kerman, Razavi Khorasan, and Khuzestan provinces (i.e. guest settlements, rural areas, and smaller semi-urban areas) were collected in October 2017 (638 responses, 31.9%). Responses from Tehran City, Kerman City, Isfahan City, and Mashhad City (neighborhoods in the core and

periphery of large cities) were collected in June 2019–September 2019 (1365 responses; 68.1%).

The survey questionnaire was in Farsi, which is a common language among Afghans in Iran. In 2017, the survey consisted of 79 questions, of which 50 were structural (yes/no or multiple choice), 17 were semi-open, and 12 were open-ended questions. In 2019, a few questions were added to include the most recent changes in Iran. Nearly half of the structural and semi-open questions (23 and 8, respectively) and all open-ended questions were exactly similar in both surveys. The large number of structural questions made responding to the survey easier and faster, while open questions facilitated gaining more in-depth responses on the issues relevant for the study.

The beginning of the questionnaire contained a short explanation about its purpose and research ethics. That was followed by questions about respondents' backgrounds, journey to Iran, housing and employment issues, future migration plans, and the ICT, the Internet, and social media uses, and open reflections (if any) by the respondent. The digital divides 1, 2, and 3 were studied in particular, consisting of 1. the availability of a mobile phone network and respondents' possession of ICT devices, 2. the skills and resources to use the Internet and social media and earlier and current uses and frequencies of uses of Internet, and 3. the perceived impact of Internet and social media uses regarding the respondents' everyday lives in Iran and the transnational connections between the Internet use and respondent's migration aspirations in Iran, to Afghanistan and to Europe. The answers indicated digital divides among the studied Afghan population's material realities, experiences, and subjective imaginations.

In practice, a team of one or two authors of this article and local research assistants of Afghan or Iranian origin conducted the survey in each location. Both male and female assistants were involved to respect the ethics and cultural traditions in approaching Afghans. The districts and neighborhoods were preselected to give a broad, but representative spectrum of areas in which Afghans live in Iran. During the field research, the individual respondents were selected randomly in the study areas. The researchers approached Afghans, explained the study's purpose, guaranteed their anonymity and the confidentiality of the participation, and reminded them about the research ethics and that they could interrupt and terminate the survey at any time. The team mentioned that the results would be published in academic articles in English and open access reports with summaries in Farsi. After the participants' consent was received, the team collected the completed survey sheets immediately. If respondents had challenges with writing, one author read the questions aloud and wrote the answers down on behalf of the respondents. Despite the partial lacks of accurate and detailed demographic, social, and employment data on the variety of Afghans in Iran, daily checks were made during the survey gathering to guarantee the survey's balance (in regard to gender, age, and when possible, educational and occupational statuses) to the extent possible.

The responses were transformed into a database using the IBM SPSS statistics software. One author and experienced research assistants translated open-ended questions to English. The translated answers were coded in the NVivo program using theory-informed content analysis on the answers' topics (employment, migration, social media uses et cetera). Experienced research assistants performed the SPSS database insertions and data coding under the guidance of one author who had conducted and processed several similar surveys earlier. The data were processed with descriptive statistical methods such as frequencies and cross tabs to measure central tendencies and dispersions among the respondents. Logistic regression analysis (the Spearman correlation) was used to study the association between independent and dependent variables to deepen and diversify the analysis.

4. Afghans' access to ICT and the Internet in Iran (digital divide 1)

Afghans' access to ICT and the Internet in Iran referred to their first-

level digital divide. This was analyzed using the variables of being covered by the mobile (cellular) network, having a possibility to possess a smartphone in Iran, and having the access to the mobile network and Internet access.

In 2019, the mobile phone network in Iran covered urban areas in which the majority of the Afghans lived. The initial access to mobile network was no longer a major concern for digital divides in Iran. Such observations have been made also among poorer inhabitants in more developed countries, including the United States [13], and elsewhere such as in India [38]. However, in some remote industrial or rural areas and refugee settlements of Iran, the network coverage was poor. This impacted in particular undocumented migrants, who worked for seasonal agricultural jobs in very remote areas, and Afghan refugees in certain guest settlements.

Besides being covered by the mobile network and having legal rights to access it, one also needs a proper device and the permission to use it. Afghans' digital access was constrained by the policy implemented in Iran in the 2010s. Afghans as foreign nationals were not allowed to purchase a SIM card in Iran or sign a contract for the use of a mobile phone in their name. Therefore, many did not have an easy access to a mobile network even in areas with the overall mobile network coverage [16]. In larger cities, these Afghans could try to overcome the regulations by relying on the use of Internet in public terminals like many other countries' poorer segments of society did in the early 2010s [see Ref. [53]]. However, these terminals could not provide privacy or access without any restrictions considering time and location. Some Afghans could overcome the legal restrictions by using a SIM card registered under the name of an Iranian – sometimes paying a little extra for this informal service. In Iran, having a simple mobile phone and using it for local calls and text messages did not require significant investments from Afghans, but possessing and using a smartphone could be substantially more expensive. Later, the restriction for mobile phones and mobile Internet access was generally relaxed, except for undocumented Afghan migrants, who could not verify their legal right to reside in Iran.

The quality of Internet access varied substantially among respondents. Legally authorized Afghan immigrants were the most satisfied with the Internet access, as many of them lived in large Iranian cities with good overall network (Table 1). Of all respondents, 46.0% were satisfied, 30.3% were uncertain, and 23.7% were not satisfied with their current Internet access.

5. Afghans' ICT and Internet use resources, skills and frequencies in Iran (digital divide 2)

Afghans' second-level digital divide refers to their resources (financial and skills) to use ICT, the Internet and social media [14], including also motivation and cultural norms related to the uses [54]. This derives from the first level divide: a certain share of Afghans in Iran were without access to required devices and networks due to for example infrastructure or legal restrictions, while an additional share of Afghans did not have the required financial or other resources, such as skills or time, to possess and use a smartphone and the Internet.

Overall, the majority of Afghan respondents up to 50 years old had a mobile phone with an Internet access (Table 1). According to our field observations, the simple use of mobile phones (calling, receiving calls, and sending or receiving text-messages) was evident among all respondents. Using a smartphone for the Internet, or otherwise using the Internet and related applications (such as social media), required more skills and resources.

The share of respondents having a mobile phone with Internet access was highest among legally authorized immigrants, of whom 83.0% possessed such a device. Most of them lived in large cities that were fully covered by the mobile network. The lowest share of possessing a mobile phone with Internet access was among the Afghan refugees living in specific refugee settlements (54.5%). This was also because the mobile network coverage was particularly poor in some of these refugee settlements. Advanced smartphones with mobile Internet access required a major investment, especially for undocumented Afghan migrants, many of whom lived in economic hardship. The respondents aged 15–18 years old, in turn, had few resources to purchase a proper mobile phone with Internet access, thus their share was also lower than the average (Table 1).

In the executed logistic regression, statistically relevant significances ($p < 0.001$) regarding the higher share of possessing a mobile phone with Internet access was found among the respondents born in Iran, employed, with higher education levels or being less than 65 years old (Table 2). In fact, only 20.3% of the oldest respondents (65 years or older) had a mobile phone with Internet access. In general, men had a slightly higher share (5.3% points) of ownership of such mobile phones than women. Such situation often appears among poorer and marginalized population segments [53,54] but tends to disappear within forced migrants along their journeys [3,4]. Overall, slightly more Afghans in Iran used the Internet than possessed mobile phones with Internet access, meaning that some of them used other devices to connect to the Internet.

The use of the Internet requires financial resources, skills, and motivation. Some Afghans lacked contacts with whom to communicate,

Table 1
Afghan respondents in Iran having a mobile phone with Internet access and satisfaction with the Internet access in their current accommodation.

	In Iran, I have my own mobile phone				Satisfied with the Internet access			
	with Internet access			n	Yes	I don't know	No	n
	Yes	I don't know	No					
Current status								
Non-camp refugees	75.4%	5.4%	19.3%	654	38.8%	34.2%	27.0%	619
Camp refugees	54.5%	3.3%	42.2%	512	–	–	–	–
Legal immigrants	83.0%	4.7%	12.3%	423	53.7%	25.5%	20.8%	423
Undocumented immigrants	72.0%	2.1%	26.0%	339	50.8%	28.2%	21.0%	262
Gender								
Women	68.2%	4.2%	27.6%	921	43.2%	32.1%	24.7%	627
Men	73.5%	4.0%	22.6%	1006	49.0%	28.9%	22.1%	674
Age								
15–18	69.7%	6.1%	24.2%	198	46.2%	28.6%	25.2%	119
19–29	84.1%	3.5%	12.4%	837	53.4%	23.0%	23.6%	640
30–49	67.0%	4.0%	29.0%	628	43.2%	34.6%	22.1%	384
50–64	45.7%	4.5%	49.7%	199	25.2%	48.0%	26.8%	127
65–	20.3%	6.3%	73.4%	64	20.0%	57.1%	22.9%	35
Country of birth								
Afghanistan	62.1%	4.1%	33.8%	959	40.8%	36.3%	22.8%	639
Iran	86.2%	4.3%	9.5%	695	50.8%	24.6%	24.6%	655
Total	70.9%	4.1%	25.0%	1934	46.0%	30.3%	23.7%	1310

Table 2
Afghans' ownership of a mobile phone with Internet access in Iran: Logistic regression analysis.

	Ownership of mobilephone with Internet access (yes = 1, no = 0)	
	Exp(B)	P
Age		
15–18	4.557***	<0.001
19–29	12.681***	<0.001
30–49	5.992***	<0.001
50–64	2.677**	0.01
65–	Reference category	
Status in Iran		
Non-camp refugees	1.198	0.357
Camp refugees	0.505***	<0.001
Legal immigrants	1.570	0.054
Undocumented immigrants	Reference category	
Education		
University	3.627***	<0.001
No university	Reference category	
Country of birth		
Afghanistan	0.486***	<0.001
Iran	Reference category	
Employment		
Employed	2.062***	<0.001
Not employed	Reference category	
Nagelkerke	0.303	
N	1511	

Notes: Statistical significance levels 0.1%***; 1%**; 5%*.

Hosmer–Lemeshow test P = 0.401.

Notes: The reference group is always the last category of each variable, so the coefficients represent the differences between the last category and the other categories. P-values in the table are not Bonferroni corrected.

reducing their motivation to use the Internet and social media for communication. Also, if an Afghan did not have any intention to leave Iran, for example, for Europe or Afghanistan, there was less motivation to search actively information about these places (for these motivational uses, see below). Measuring Afghans' skills in using the Internet in Iran would have required objective testing because of users' subjective and relative opinions. The frequent Internet use was taken as a proxy for having at least medium skills to use the Internet.

In general, Afghans' Internet use, its frequency, and related skills had grown substantially during the people's permanence in Iran. These grew also among those who came from Afghanistan during the 2010s, when the Internet coverage and use in Afghanistan were still substantially less extended than in Iran [18]. However, regardless of age, respondents born in Iran were more frequent users of the Internet than those born in Afghanistan. The latter result was valid also within the same age cohorts. Earlier studies have also found particular needs for forced migrants to be digitally connected at different stages along their fragmented journeys, especially during the times they are or become more settled [3,42].

Resource and skills-related differences in the use of the Internet existed between the Afghans of different legal statuses in Iran, with particularly the camp refugees and undocumented migrants standing out. Internet use frequencies differed along respondents' legal statuses and demographic backgrounds (gender and age). For example, 75.0% of legal immigrants, 58.0% of non-camp refugees, 54.1% of camp refugees, and 31.6% of undocumented migrants used the Internet at least several times a week. Some Internet-using undocumented migrants pinpointed also their lack of financial resources and time as the reason for their scarce Internet use. Cultural reasons mattered to some extent: among male Afghans, frequent Internet use was more common (57.5%) than among women (49.9%). As our observations indicated, some Afghans followed patriarchal cultural practices from Afghanistan even in Iran, limiting also women's access to Internet.

There were also functional reasons for differences in the frequencies

of the Internet use. Younger men needed to use the Internet more often due to employment and activities outside the domestic realm. Age also mattered, as indicated in earlier studies [cf [28]]. Only 8.0% of respondents who were at least 65 years old (born before 1955) used the Internet several times a week or more, while 20.2% of those aged 50–64 (born 1955–1969), 46.1% of those aged 30–49 (born 1970–1989), 70.4% of those aged 19–29 (born 1990–2000), and 57.5% of those aged 15–18 (born after 2000) were among these frequent users (Table 3). As noted earlier, fewer under-aged respondents had financial resources to possess a proper mobile phone with Internet access than those of the older age groups (Table 1; Table 2).

Active Internet use resulted in a proxy of Afghans' enhanced societal position in Iran. Daily Internet users were more successful, integrated, and modern (i.e. proportionally fewer were married, and more had better English skills and higher education levels, lived in larger cities, were entrepreneurs et cetera) than the respondents who never used the Internet. The most active Internet users consisted of younger and middle-aged (20–39 years old) respondents, those born in Iran (that is, second or third-generation Afghans in Iran), men, employed, and those with higher education levels, a better command of English, and a residence permit in Iran. They had better resources and skills in comparison with other respondents, and more of them possessed the needed device. However, higher salary did not directly lead to more frequent Internet use. For example, many undocumented Afghan migrants in Iran earned substantially more than Afghan refugees or even authorized legal Afghan immigrants, but many of the undocumented migrants sent remittances to Afghanistan, had less free time compared with other Afghans in Iran, and did not know the tricks to obtaining a proper SIM card, resulting in using the Internet less. Of all respondents in 2019 (thus not including camp-refugees), 75.1% used social media. The largest shares was among the respondents who were less than 30 years old (83.2%) and those who were legally authorized Afghan immigrants (79.1%). These shares were higher than their possessing of smartphones, that is, they utilized also other means to communicate with social media. The lowest share (47.0%) of social media users was among respondents who were 50 years or older (Table 3).

5. The impact of the Internet and social media uses of Afghans in Iran (digital divide 3)

It is challenging to study the third-level digital divide among Afghans in Iran. It is both a subjective and an objective matter. First, respondents gave opinions on how they perceived the impact of the Internet and social media on their everyday lives in Iran. Second, they answered whether they used the Internet and social media for functional migration-related aspirations inside Iran, to Afghanistan or to Europe. Third, it was considered if the Internet and social media uses had any impact on transnational practices among these Afghans.

Half (49.6%) of the respondents stated clearly that the Internet and/or social media use made their lives easier in Iran (Table 4). Legally authorized immigrants responded the most positively when asked about the Internet and/or social media uses making their lives easier in Iran. Same applies to those respondents from the Razavi Khorasan region (including Mashhad), those with an urban background, and those with higher education levels (who had studied at university). Of legally authorized Afghan immigrants who used Internet at least sometimes, 66.0% stated that the Internet and social media made their lives easier in Iran, while that share was lower among non-camp refugees (55.4%). Among the Internet users, the Internet using camp refugees and undocumented migrants, Khuzestan residents, those with a rural background and those not attended university considered the impact of Internet and/or social media least positively.

A large share (75.8%) of the Internet users who were satisfied with their Internet access in their current residence stated that the use of the Internet and/or social media made their lives easier in Iran: this share was 38.1% among those who were not satisfied with their Internet

Table 3
Afghan respondents' Internet and social media uses in Iran.

	Internet use in Iran					n	Social media use	
	Every day	Many times a week	Once a week	Less frequently	Never		Yes	n
Current status								
Non-camp refugees	39.1%	18.9%	5.2%	16.3%	20.5%	655	74.1%	630
Camp refugees	20.6%	11.0%	5.1%	19.8%	43.4%	525	-	-
Legal immigrants	55.5%	19.5%	3.9%	9.6%	11.5%	436	79.1%	440
Undocumented immigrants	30.9%	23.2%	5.0%	10.9%	30.2%	341	73.4%	267
Gender								
Women	33.4%	16.5%	5.5%	17.3%	27.3%	942	76.4%	645
Men	38.5%	19.0%	4.3%	12.6%	25.6%	1013	74.5%	690
Age								
15–18	34.8%	22.7%	5.6%	17.2%	19.7%	198	76.7%	120
19–29	52.2%	18.2%	5.0%	13.1%	11.6%	848	84.4%	655
30–49	27.5%	18.6%	5.1%	17.2%	31.5%	644	72.4%	399
50–64	9.4%	10.8%	4.4%	13.3%	62.1%	203	50.0%	128
65–	3.2%	4.8%	1.6%	12.9%	77.4%	62	36.1%	36
Country of birth								
Afghanistan	24.7%	17.1%	5.8%	14.6%	37.7%	970	64.7%	652
Iran	58.4%	18.6%	2.8%	11.9%	8.2%	704	85.9%	673
Total	36.3%	17.7%	4.9%	14.8%	26.3%	1963	75.5%	1343

Table 4
Responded Afghans' subjective perception on the Internet and social media uses' impact on their everyday lives in Iran.

	The use of Internet and/or social media makes my life easier (in Iran)			n
	Agree	Don't know	Disagree	
Current status				
Non-camp refugees	47.6%	26.6%	25.8%	647
Camp refugees	45.1%	16.9%	38.1%	486
Legal immigrants	60.6%	21.5%	17.9%	424
Undocumented immigrants	46.5%	19.5%	33.9%	333
Gender				
Women	48.4%	23.3%	27.9%	908
Men	50.4%	20.3%	29.4%	981
Age				
15–18	51.0%	22.4%	26.6%	192
19–29	58.7%	19.7%	21.5%	826
30–49	46.4%	22.0%	31.6%	617
50–64	29.4%	27.3%	43.3%	194
65–	21.7%	26.7%	51.7%	60
Country of birth				
Afghanistan	42.5%	23.7%	33.8%	944
Iran	58.4%	22.2%	19.3%	688
Total	49.6%	21.7%	28.6%	1896

access. An easy and suitable access (narrow first-level digital divide) facilitated positive impacts of the Internet and/or social media on the lives of Afghans in Iran (Spearman correlation $p = 0.419$). Afghan respondents searched and found comfort and pleasure through the Internet or social media and got at least some consolation from these. The risks of being digitally surveilled by the authorities were rarely expressed in the Afghans' responses [see also Refs. [45,46]].

Migration aspirations and preparations were a specific impact that was analyzed among the Afghan respondents. Migration aspirations could refer to Iran (internal migration), Afghanistan (return migration) or third countries, located mostly in the EU (on-migration). As regards migration aspirations and intentions within Iran, the Internet and social media were not significant sources for Afghan respondents to consider where to live. Of Internet-using respondents, 19.9% used the Internet and social media to search for information about places where they could live in Iran in the future. Similar lower shares have also been found among Syrian refugees living in Turkey [10]. Those who used the Internet or social media for these purposes were usually residing in Tehran, born in Iran, under 30 years old, and authorized legal immigrants. Of those who searched for such information, 50.0% argued that information and interaction on social media facilitated their decision

where they would move in Iran. However, as mentioned, there are many limitations to where Afghans can live in Iran, meaning that there is not necessarily relevant information available online about different places to live. In addition, many do not seriously consider migrating within Iran. On these matters, gaining information through direct face-to-face discussions or phone calls would be easier than finding the information from the Internet.

Another major impact of the Internet and social media's potential for Afghans was to provide useful information about Afghanistan and other countries, especially if an Afghan was considering migration out of Iran, as well as the ability for Afghans in Iran to be in contact with family and/or friends who lived outside the country. These were transnational contacts that could become sources for transnational practices [see also Refs. [10,11]].

Due to the Iranian authority-imposed mobility restrictions on Afghans in, to, and from Iran, many Afghans considered, imagined, and planned migrating elsewhere, for example to Afghanistan or Europe. Until recently, Afghan refugees could not officially visit Afghanistan without losing their refugee status in Iran. In fact, only 8.6% of the non-camp refugees had visited Afghanistan in 2014–2019. Undocumented migrants had to cross the borders illegally back and forth to Afghanistan (directly or through Pakistan), thus practicing irregular circular migration. If Afghans in Iran intended to reach Europe, they had to cross many borders. It was practically impossible to visit Europe for almost all Afghans who resided in Iran.

To overcome physical immobility, Afghans developed digital transnational practices to be in immediate contact with various people and places across countries. Bridging and bonding connections [see Ref. [43]] from an individual's place of residence to places elsewhere happened through digital communication and digital information gathering about possible or imagined places to live [see Ref. [9]]. These connections mixed Afghans' images about Afghanistan, Europe, and other places as they could get real experiences from others who lived outside Iran.

Every respondent had either direct or indirect connections to Afghanistan. However, physical travel to Afghanistan was rather rare. Of those born in Iran, 24.5% had visited Afghanistan in 2014–2019. Such visits were usually for functional purposes to acquire necessary documents from Afghanistan, visiting relatives or both. However, one possibility for Afghans to have transnational connections was to maintain or develop digital connections to their real and imagined country of origin, Afghanistan. Of the Afghan Internet users, 57.1% used the Internet to follow the situation in Afghanistan. Those born in Afghanistan used the Internet much more often to follow the situation in Afghanistan,

whereas those born in Iran used the Internet more frequently to search information about where they could live in Iran. There was a small gender-related difference (3.1% points) among male and female respondents using the Internet for searching information about Afghanistan, but it was not statistically significant in the chi-square test. Such difference was large (13.3% points) between Afghans with different legal statuses in Iran. Among Internet users, 65.6% of authorized legal immigrants and 52.3% of camp refugees used the Internet to search for information about Afghanistan (Table 5).

Being digitally connected with Afghanistan meant knowing and imagining how it would be over there, thus gradually disconnecting oneself from Iran and from those Afghans not interested in Afghanistan. Of Afghan respondents following the situation in Afghanistan online, 41.9% wanted to return to Afghanistan, while the share was 27.8% among the non-followers. However, the Spearman correlation was low ($p = 0.198$) between following the situation in Afghanistan and considering returning there. Aspiring to migrate to Afghanistan did not depend solely on respondents' Internet use. In general, legally authorized Afghan immigrants were only temporarily in Iran, and they would (most likely) return to Afghanistan as would the undocumented migrants. However, Afghan refugees had in general less motivation and opportunities to return to Afghanistan. Regardless of aspiring to migrate to Afghanistan or not, most Afghans in Iran used social media for keeping in contact with friends and/or relatives in Afghanistan (79.5% of social media users did so at least sometimes) – a common finding also in earlier studies regarding forced migrants' social media uses [4,10,11]. The users were most often (in relative terms) undocumented immigrants, Razavi Khorasan residents (including Mashhad), and those born in Afghanistan. Some Afghans searched information digitally and communicated through the Internet or social media only regarding Afghanistan and not Europe. Of them, 58.9% would like to return to Afghanistan. Furthermore, 24.2% of them felt they belonged to Iran and 24.8% thought to live the rest of their lives in Iran.

Transnational practices regarding Europe depended on digital means. None of the respondents had visited any European country. Despite this, many knew Afghans who lived in Europe. Afghans from Afghanistan, Iran, and Pakistan are among the top nations of asylum seekers in the EU [57]. Many respondents imagined and aspired to leave to the much wealthier Europe. This digitally supported transnational practice of Afghans in Iran gradually differentiated them from the Afghans focusing on remaining in Iran.

Of the Afghan Internet users, 49.3% searched for information about possibilities of living in Europe from the Internet. There was practically no difference in this between men and women (0.8% points). The younger the respondent, the higher was their share searching online information about living in Europe. Of the Afghan Internet users, 50.0% searched for information also about functional activities in Europe, namely job opportunities. Slightly fewer (45.6%) searched for information about possible travel routes to Europe (Table 5). A statistically significant Spearman correlation ($p = 0.378$) existed between searching information about Europe and the respondents' aspiration to migrate to Europe.

Interactive digital communication between Afghan respondents and their friends and relatives living in Europe was another transnational practice. Social media was used for keeping contact with friends and/or relatives in Europe (68.4% of social media users) and in other foreign countries (57.4% of social media users, Table 5). However, it was not asked how many respondents had friends or relatives in countries outside Iran. The Afghan respondents who used social media for contacts in Europe were typically born in Iran, residents of Razavi Khorasan (including Mashhad) or Isfahan, authorized legal immigrants, or those with an urban background.

In all, there were Afghans who developed strong digitally mediated transnational practices, that is, they searched for information both about Afghanistan and Europe through the Internet and communicated with people both in Afghanistan and Europe. They were typically from

Table 5
Digitally-mediated transnational practices of Internet-using Afghan respondents in Iran (n = 1446).

Current status	I use the internet to search information about jobs in Europe				... my future travel routes in Europe				... the situation in my home country				... places where I could live in the future in Iran (2019)				
	... living in Europe		... in Europe		... in Europe		... in Europe		... in Europe		... in Europe		... in Europe		... in Europe		... in Europe		... in Europe		
	Agree	Don't know	Disagree	n	Agree	Don't know	Disagree	n	Agree	Don't know	Disagree	n	Agree	Don't know	Disagree	n	Agree	Don't know	Disagree	n	
Non-camp refugees	53.1%	19.6%	27.7%	501	55.2%	19.4%	25.4%	504	43.9%	25.9%	30.1%	501	53.1%	22.4%	24.6%	505	20.4%	27.9%	51.6%	494	
Camp refugees	48.4%	14.5%	37.1%	283	45.0%	17.0%	37.9%	282	49.3%	18.7%	32.0%	278	52.3%	15.5%	32.1%	277	-	-	-	-	
Legal immigrants	48.0%	19.9%	32.1%	371	51.5%	17.0%	31.5%	371	48.1%	17.0%	34.9%	370	65.6%	14.2%	20.2%	372	22.3%	25.0%	52.7%	372	
Undocumented immigrants	44.2%	12.9%	42.9%	233	42.2%	12.6%	45.2%	230	40.5%	13.4%	46.1%	232	57.3%	10.7%	32.1%	234	14.6%	16.5%	68.9%	206	
Gender																					
Women	48.8%	19.7%	31.5%	660	48.5%	19.8%	31.7%	656	43.3%	23.4%	33.2%	653	55.5%	18.3%	26.1%	654	22.7%	25.6%	51.6%	519	
Men	49.6%	15.7%	34.7%	726	51.3%	15.0%	33.7%	727	47.6%	16.8%	35.6%	725	58.6%	15.5%	25.9%	730	17.3%	24.0%	58.7%	550	
Age																					
15-18	55.5%	20.0%	24.5%	155	53.8%	21.8%	24.4%	156	51.3%	26.3%	22.4%	156	47.7%	23.2%	29.0%	155	24.2%	25.3%	50.5%	99	
19-29	51.8%	18.3%	29.9%	726	53.8%	16.3%	29.9%	723	49.2%	19.7%	31.1%	721	58.6%	17.3%	24.2%	724	21.2%	25.0%	53.8%	589	
30-49	44.5%	16.1%	39.3%	422	45.6%	17.6%	36.8%	421	40.8%	18.6%	40.6%	419	59.9%	14.5%	25.7%	421	18.7%	25.8%	55.5%	310	
50-64	43.1%	15.3%	41.7%	72	34.7%	15.3%	50.0%	72	29.6%	18.3%	52.1%	71	45.2%	12.3%	42.5%	73	7.9%	20.6%	71.4%	63	
65+	-	8.3%	91.7%	12	7.7%	7.7%	84.6%	13	7.7%	15.4%	76.9%	13	53.8%	15.4%	30.8%	13	18.2%	18.2%	63.6%	11	
Country of birth																					
Afghanistan	43.1%	16.4%	40.5%	580	41.5%	17.8%	61.5%	578	40.4%	17.5%	42.1%	577	62.2%	13.1%	24.7%	580	15.4%	23.9%	60.7%	461	
Iran	55.2%	19.9%	24.9%	623	59.0%	17.4%	23.6%	622	50.2%	22.3%	27.5%	622	55.9%	20.5%	23.6%	624	23.4%	26.1%	50.5%	602	
Total	49.3%	17.5%	33.2%	1392	50.0%	17.2%	32.8%	1390	45.6%	20.0%	24.4%	1385	57.1%	16.8%	26.1%	1391	19.9%	24.9%	55.2%	1076	

Isfahan or Tehran, born in Iran, and under 30 years old. For them, the Internet and social media provided a platform to develop and maintain meaningful and important networks and social bridging and bonding out of Iran, be actively and emotionally engaged with such places and people, and become less focused on Iran. Of these respondents practicing transnational digital activities, 15.2% felt a sense of belonging to Iran and 13.7% mentioned that they would likely spend the rest of their lives in Iran. On the contrary, almost a half (48.3%) of those who did not perform digital information searching and communication targeted outside Iran felt that Iranians were friendly toward them, and almost two-thirds (62.1%) thought that they would likely spend the rest of their lives in Iran.

6. Conclusions

The article studied forced migrants and their ICT, Internet and social media uses, digital divides, and digitally mediated transnational practices – a topic of increasing research interest due to the advances taking place in the digitalization of communication, as well as the large number and share of forced migrants using these devices [e.g. Refs. [1,3,5,7,10,11,50,52,53,55,56]]. The article focused on Iran as well as the legally authorized Afghan immigrants, Afghan refugees, and undocumented Afghan migrants there. Afghan migrants are a very significant group both globally and in Iran, where they make up more than three million people.

As evidenced, more than two out of three Afghan respondents possessed smartphones with Internet access, and a slightly larger share used the Internet. Afghans' first- and second-level digital divides generally narrowed following their migration from Afghanistan to Iran. They had better access to mobile networks, even though Iranian authorities constrained Afghans' Internet and social media access and uses in Iran. However, the first-level digital divide (access) and partially the second-level digital divide (resources and skills) did exist, including social media use. Income was not a straightforward reason for the digital divides as discovered in many earlier research studies [11,12,28,36]. Instead, having a refugee status, being born in Afghanistan, and older age (more than 50) characterized those experiencing the widest digital divide compared with the rest of the Afghans.

The third-level digital divides concerned various impacts from ICT, the Internet, and social media. In Iran, Afghans were exposed to strong restrictions placed on physical mobility. To overcome this, many increased their digitally mediated transnational practices to access and communicate across borders. Afghans who considered Europe to be their potential destination were much more actively digitally connected compared with those aiming to remain in Iran. Transnationally digitally intensively connected Afghans became gradually differentiated from the realms of locally oriented Afghans, who felt more welcomed in Iran. Digitally mediated transnational practices facilitated the emergence of hybrid identities as well as aspirations and imaginations regarding everyday lives outside of Iran that most Afghans could never physically realize. These digital practices were not the reason for Afghans' detachment from Iran but rather a solution for overcoming their involuntary physical immobility.

Forced migrants share many similarities around the world, but their contexts vary substantially and so do their possibilities of accessing and using the Internet and social media. The studied case illustrated how it is still important to study the first- and second-level digital divides among forced migrants despite the fact that many researchers nowadays focus only on the impacts of ICT, the Internet, and social media. Forced migrants have to rely on digitally mediated communication. They are therefore often more frequent Internet and social media users than the hosting population is. Nevertheless, forced migrants' differences in terms of their access to and uses of Internet and social media contribute to their variations in physical and digital mobility. In the 2020s, the COVID-19 pandemic, economic and political changes in Iran, and the Taliban in Afghanistan brought on further changes to Afghans'

situations in Iran. Future studies in Iran could address the digital divides of Afghan women as well as third- and fourth-generation Afghans, along with the related impacts on their identities and migration aspirations.

Digitalization is advancing globally, and this includes the uses of the Internet and social media. It is important to study these topics as well among people in challenging situations, such as those of forced migrants, since they often depend more on digital connections in their everyday lives and aspirations compared with the hosting population. Ethnographic approaches and qualitative interviews have been the most common methods for studying the Internet and social media uses of forced migrants. Along with these, surveys and longitudinal quantitative studies are needed. They would reveal changes as well as the variety of practices and impacts of digitalization on forced migrants' social networks and mobility. Furthermore, future studies could address the contexts in which digital inclusion policies [see Ref. [6]] are and are not implemented regarding forced migrants, as well as how these impact these people's everyday lives and the connections between them and the hosting society.

The limitations of the article concerned the impossibility of knowing the details of the social media use of Afghans, especially camp refugees. Despite the fact that digital communication tools cannot solve all of the challenges that forced migrants face, access to the Internet should be guaranteed to all Afghans in Iran as well as to all forced migrants everywhere. Policies and practices are needed to narrow the remaining digital divides and to support digital inclusion.

Credit author statement

Jussi S. Jauhiainen: Conceptualization, Methodology, Field Survey Data Collection, Analysis, Writing, Writing – original draft, Review & Editing. Davood Eyvazlu: Conceptualization, Methodology, Field Survey Data Collection, Analysis, Writing, Writing – original draft. Johanna Junnila: Analysis, Writing. Ada Virnes: Analysis, Writing.

Declarations of competing interest

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