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Psychosocial ICT: The Potential, Challenges and Benefits of Self-help Tools for Refugees with Negative Mental Stress

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Abstract. Information and Communication Technology (ICT) has penetrated almost all areas of life today and has the potential to create positive change. This paper addresses the opportunities offered by ICT for improving the resilience and psychosocial well-being of refugees who have experienced mentally stressful events when forced to leave their home country and seek shelter in a different host country. We want to distinguish between perceived stress and clinically-defined trauma, for which therapeutic interventions require direct personal contact with psychological experts. However, we also want to focus on the digital possibilities that currently exist to support establishing this kind of personal connection. Many refugees need to seek psychological help, but social, economic and cultural barriers hold them back. Our qualitative study with refugees, psychologists and volunteers provides insights into how refugees deal with their mental issues and the challenges they face in everyday life. We aim to show that ICT can play a major role in terms of addressing awareness and self-empowerment as an entry point for this vulnerable group. We also discuss the potential challenges and benefits of ICT for refugees seeking to recover their mental stability.

Keywords: eMental Health; Psychosocial ICT; Poetry Therapy; Bibliotherapy; Expressive Writing; PTSD; Refugees; Qualitative methods

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Introduction

Information and Communication Technologies (ICT) are becoming increasingly ubiquitous and, in recent years, very sensitive areas such as health and health protection have become an important field of research for ICT-based interventions. A relatively young area in this regard is mental health (Luxton et al. 2011), including depression and suicidal tendencies, with researchers just starting to develop online-tools to connect people who need help with people who can provide it. The internet is now a resource for online-counseling, focusing on psychosocial support (Barak et al. 2008) and psychoeducation (Luxton et al. 2011). The focus here is on people's psychosocial health and the role technology can play in improving it.

The United Nations High Commissioner for Refugees (UNHCR) estimates that there are around 25.9 million refugees worldwide (UNHCR 2020). The conflict in Syria is currently the biggest driving force for migration (6.7 million), but others include the continuing violence e.g. in Afghanistan (2.7 million), South Sudan (2.3 million) and Iraq (2 million) (UNHCR 2020). Monitoring the various routes that migrants use, the EU's external border force, Frontex, detected 1.8 million entries into the EU “*associated with an estimated 1 million individuals*” (Frontex 2016) in 2015. Despite new results in 2019 showing a 92% decline from this peak (Frontex 2019), the so called “*refugee crisis*” remains a global social and political challenge (UNHCR 2016). Germany is a particularly favoured destination (UNHCR 2015b), with more than one million refugees arriving in 2015 (BBC News 2016). This target group face a battery of challenges. Often they travel to other countries at risk of their lives, then struggle with finding relevant information to support everyday existence and ways to make themselves heard (politically and socially). This can lead to a variety of stressful or traumatic experiences. When using the term trauma, we speak of “*psychological wounds*” (Kleefeldt 2018). Basically, reference is made to the description of the situation that caused the trauma, the consequences of this situation or the symptoms of the trauma (Kleefeldt 2018). In our study we focus on all these uses.

The main reason for choosing the vulnerable target group of refugees is that they face many barriers, in view of the current immigration rate in Germany and its upward trend (Alburez-Gutierrez and García 2018). There are generally too few professionals, e.g. psychologists, even fewer who can speak the relevant language or who are at least fluent in English, and who have intercultural knowledge, let alone being experienced with the mental challenges and potentially multiple traumas suffered by refugees (Bajbouj et al. 2018). Schneider et al. (2017) categorize such barriers as structural, while individual barriers are, for example, feelings of shame and self-stigmatization, the lack of knowledge about assistance, or a lack of language among the refugees themselves (Schneider et al. 2017; Mestheneos and Ioannidi 2002). Therapy or even just simple conversations about

their emotions aren't possible if they are preoccupied with how to connect words and what words to use. A social barrier would be e.g. stigmatization through others (Schneider et al. 2017). Also, Western therapeutic approaches cannot easily be transferred to other cultures (von Lersner and Kizilhan 2017). Another problem for refugees is access from their geographic location in their host country (Mestheneos and Ioannidi 2002).

In this exploratory study we conducted qualitative interviews with refugees, psychologists and volunteers to understand how psychosocial health affects everyday life and how refugees deal with it. We will also recap the current state of the art regarding our target group, ICT in mental health contexts and Poetry Therapy with a special focus on Expressive Writing (EW). In relation to this, we will provide an overview of how mental health has been handled by the HCI and CSCW community so far and examine the extent to which ICT and therapeutic methods such as therapeutic writing can help refugees to address negative mental stress and trauma. Specifically, we will be asking: What are the challenges but also the possibilities of 'Psychosocial ICT' for this highly sensitive field and what benefits might go along with them? We use this term to distinguish the interest from therapeutic interventions that deal with serious mental problems. Psychosocial ICT aims to promote self-awareness and self-reflection as well as empowerment and personal growth. To support personal strengths, therapeutic interventions can be transformed into self-help tools, but this should be complementary to psychological treatment, if necessary. This type of support is usually only provided when psychological problems have been identified and a place in therapy is available.

Mental health in the field of HCI and CSCW

Recent years have seen a huge increase in research regarding technology and mental health. We will give here just a small sample of the wide range of studies undertaken to indicate the kinds of topics pursued.

Thieme et al. (2015) addressed mental well-being, noting that it is based on multiple aspects, which are complex and fluid. Well-being factors are based on "*individual needs, context factors, or physical health*" (Thieme et al. 2015). Their concept of well-being has three different focal points: emotional well-being (which is related to the maximization of pleasure), psychological well-being (focusing on increasing self-esteem, personal growth and true authenticity), and social well-being (focusing on embeddedness) (Thieme et al. 2015).

To examine the mental health of adolescents Matthews and Doherty (2011) used mobile-based MMS and their access to and participation in therapy. By creating content that reflected the world view of its users the researchers sought to establish the potential of storytelling using mobile devices as a therapeutic method. Their findings were used as the basis of proposed design implications for developing digital tools for therapeutic interventions in HCI, including: well-structured tasks

between therapy sessions; a wide range of content to work with; an appropriate framework for content use; therapy personalization options; and adaptability to various therapeutic approaches (Matthews and Doherty 2011).

Most important for the design of digital mental health systems are cultural and contextual aspects, as emphasized by Franco et al. (2016) in their community collaborative design study with veterans. Their smartphone-based psychosocial peer-to-peer support system served, among other things, the aspect of early detection of harmful behavior. According to the authors, crisis intervention systems can only be successful if the design considers and promotes the understanding of corresponding user needs (Franco et al. 2016).

Dosono et al. (2016) emphasize the empowerment of resilience of veterans and refugees in the process of (re-)integration. Coming from a war zone, both target groups suffer from identity crises. They found that ICT has supported identity awareness during transitional changes as well as online and offline connection with people from similar contexts, fostering collective processes of meaning, which have helped to increase understanding of new cultural expectations, shape new social practices and receive social support (Dosono et al. 2016).

Bratt et al. (2017) show results in connection with wearable devices and the sensitization and training of mindfulness towards personal states of mind and body to support resilience regarding PTSD patients. In their study, they developed design criteria which among others include: detection of stress and emotions, provision of an indication to the user that stress and negative emotions are present, inconspicuousness to avoid stigmatization and permanent connection to social support systems (Bratt et al. 2017).

Further studies with different age groups have considered other forms of digital support systems based on different social media platforms, e.g. Instagram (Feuston and Piper 2018) or Facebook (Park et al. 2015). Some have focused on different mental issues, e.g. eating disorders (Chancellor et al. 2016), substance abuse and recovery (Schmitt and Yarosh 2018), self-harm (Pater and Mynatt 2017), or depression (Andalibi et al. 2015). Sometimes the focus has been on specific digital devices, e.g. smartwatches (Dibia 2016; Bratt et al. 2017), or on areas like game design (van der Meulen et al. 2018) or virtual reality design (Wrzesien et al. 2011). There is also material relating to mental health awareness (Parker et al. 2013) and management (Murnane et al. 2018).

This list of studies is far from complete and, as public awareness of the scope to use digital tools to support mental health increases, it is set to grow even more in the future. Our own study is focused on how to adapt the insights from such studies for the support of the mental health of refugees.

Refugees and ICT

There has been a growing interest in HCI refugee and migrant research regarding their use of ICT and how they draw upon ICT for support (e.g. Harney 2013). Studies have shown that both smart and feature phones are commonly used among refugees but the knowledge and ability to use ICT varies among its users and is influenced by their level of education, country of origin, whether they lived in an urban or rural setting, and their social status (Baranoff et al. 2015). Individual biographies and the above-mentioned dependency structures underscore the need for refugees to take an active interest in modern ICT as a way of helping themselves in emergencies or to find outside help. The smartphone as a mobile device represents the most flexible way of gathering information. For digital interventions originally based in therapy this would mean a comprehensive auxiliary function on top of existing mental health support.

ICT, especially smartphones, play an important role for refugees, before, during and after their flight (Maitland et al. 2018; Gillespie et al. 2018), but especially afterwards, when they have to cope with new challenges. Few studies have yet explored the role that smartphone applications can play in the handling of trauma by refugees even though studies have investigated how apps and/or websites can help to support psychotherapy in general (Bush et al. 2015; Spijkerman et al. 2016). Here interventions have had a positive impact as studies showed (Bush et al. 2015; Spijkerman et al. 2016), but their conclusion was that research in this area needs further investigation. This is where we want to continue in our explorative study by conducting first interviews with people who experience stress or mental health issues and get more insight into the potential, challenges and benefits of technology-based tools using Poetry Therapy as a self-help method.

Refugees in Traumatic Contexts

In the case of refugees, a trauma is usually brought on by experiences of war and flight. This can be aggravated by the new and stressful challenges that arise upon reaching their destination country (e.g. economic hardships or problems of integration), obstructing the healing process. People who may have had a higher status back home, often find this is diminished or lost, causing isolation, which can be compounded by limited education or language difficulties, increasing the risk of mental illnesses (Kira et al. 2014). The authors mention that the more problems people have with acculturation, the worse their mental symptoms of trauma. It can also be a source of stress when people are separated (Kira et al. 2014). All these things must be taken into account when talking about the concept of resilience, which Southwick et al. (2014) describe as follows:

"[...] resilience is a complex construct that may have specific meaning for a particular individual, family, organization, society and culture [...] and [...] there are likely numerous types of resilience [...] that depend on context."

Against this background, resilience is a *"variable that changes constantly depending on multiple environmental conditions, resources and loads"* (Kleefeldt 2018) what makes a general fixed definition difficult. Moreover, there is currently no attempt to do so in the context of working with refugees (Kleefeldt 2018). The attempt of a generally sufficient psychological one would be:

"Resilience is the ability of people to react flexibly and appropriately to changing life situations and requirements in changing situations and to master stressful, frustrating and difficult situations without psychological consequences, i.e. to withstand such extraordinary pressures without negative consequences (Stangl, 2020).

If traumas are present, this accordingly means that the traumatised person has not previously had sufficient resilience to cope adequately with stressful life events. One possibility to restore health can be the salutogenesis model of Aaron Antonovsky (1979, 1986, 1997), which is concerned with a resource and strength-oriented development of health. Its central factor is the sense of coherence, which consists of three components: comprehensibility, meaningfulness and manageability. The feeling of coherence is particularly important in order to achieve a reorganisation of the inner world of experience after traumatic events. The sense of coherence helps to reflect on personal history, whether it is fragmentary, contradictory or ambiguous. It can support the process of growth that follows this story and help to cope with suffering and discard feelings of fear, shame and guilt. According to the authors, refugees in particular show a high degree of resilience here, as they have had the experience of crossing a border that was previously considered to be the end and then survived. The sense of coherence creates consistency against this background (Kleefeldt, 2018). In the context of Poetry and Bibliotherapy such a feeling of coherence can be addressed in a very goal-oriented way, since personal stories can be experienced and explained through reading and writing.

Poetry Therapy, Bibliotherapy & Expressive Writing

Writing, as a medium of self-expression, can be seen to help writers reflect upon themselves and to assist them in rearranging their memories of past experiences. Writing can also be a vehicle to reach different states of mind by opening the consciousness to thought processes (Heimes 2012). Such possibilities address all factors of the salutogenesis model from Antonovsky to create the feeling of coherence (Kleefeldt, 2018). Challenges can be classified and structured, making them more manageable, creating comprehensibility. On the basis of new

perceptions and interpretations, identity can thus be newly created and previous experiences can be considered meaningful, whereby memories prove to be plastic. If experiences can be assigned meaning, they take up less space in everyday life (Kleefeldt, 2018), which reduces distress. The process of writing helps to trigger resilience-enhancing personality factors. Self-perception, control, goal orientation, problem solving competence, the conviction of self-efficacy and personal coping with stressful events become tangible. Social competence has the chance to flourish on basis of this healing process which retroactively supports a positive attitude towards life (Kleefeldt 2018). At this point, however, we must again bear in mind the above-mentioned notion of resilience by Southwick et al. (2014), since personal resilience factors only represent the individual part of successful resilience, which is still surrounded by a collective framework, determined by different systems and system conditions. Some of them may be considered in a socio-technical solution, others are too complex to be solved in one single step. Nevertheless, each partial solution represents an important component of the whole.

A very specific type of writing within a broader approach known as Poetry Therapy is *Expressive Writing (EW)*. The notion of EW was first developed by Leedy (1969) and Lerner (1980) as an overarching term to cover the use of writing and reading as therapeutic interventions. It has been argued to activate cognitive and linguistic processes within the human brain. Thus, Horn and Mehl (2004) argue that:

“EW facilitates the formation of a coherent narrative of the experiences, which is then more efficiently stored and can be more easily forgotten. In addition, it assumes changes at the social level that enable the person to respond more actively to their environment and to integrate better into their social network.”

EW was originally proposed a specific form of writing by James W. Pennebaker (1997) who argued that the positive effects of expressing emotions through writing could be used in therapeutic contexts. His studies (and others) have shown that writing has the potential to mitigate physical (O’cleirigh et al. 2008) and mental disorders (Sloan et al. 2009) and thus increases personal well-being. It has been suggested that inhibitions or negative emotions in this context can be harmful (Cameron and Nicholls 1998; Esterling et al. 1999), but EW sessions are conducted in short 15-20-minute bursts over a 3-5 day period. This gives control over the depth and length of expression and its short-term emotional consequences (which are usually negative) gradually become something longer-lasting with certain positive effects. During a session a chosen stressful life experience is addressed and given close consideration (Horn and Mehl 2004). The writing process can then be repeated as often as necessary, focusing on different meaningful experiences.

Bibliotherapy often accompanies Poetry Therapy as it supports the process of writing by making available narratives and perspectives prepared by others with identical or similar background stories as well as a range of individual solutions

and mitigating strategies (Heimes 2012). This builds upon the place of narratives within human history and their role in shaping everyday lives and capturing personal experiences (Peterson 1999). By dealing with other people's narratives, it invites active reflection on non-informational texts. Bibliotherapeutic approaches have produced effective results for things like the mitigation of anxiety and sexual dysfunction (Marrs 1995), anxiety disorders (Rapee et al. 2006), depression (Scogin et al. 1990; Cuijpers 1997; Ackerson et al. 1998; Morgan and Jorm 2008) obsessive-compulsive disorders (Fritzler et al. 1997), addiction (Pardeck 1991), sleeping disorders (Burke et al. 2004), and child abuse (Pardeck 1990; DeMaria 1991).

Both writing and the reading of similar stories to one's own can help people to dive into cognitive processes in which personal experiences can be rethought by reinterpreting their meaning, which has a strong connection to the salutogenesis model of Aaron Antonovsky. Through the digitalization of Poetry Therapy, Socio-Informatics can enable a diverse set of therapeutic interventions, whose effects have already been proven in face-to-face applications (Pardeck 1990; Rapee et al. 2006; Spijkerman et al. 2016). This makes it promising as a first step towards help for vulnerable target groups, but one should not forget that culture is a framework that strongly influences the outcome of psychotherapeutic methods.

Culture-Sensitive Psychotherapy

Using the term *culture* makes it most important to define it in the first place. Following von Lersner and Kizilhan (2017) culture is a system of symbols that is accessible to several people at the same time and is simultaneously dependent on them in its entirety, which retroactively shapes the life of the individual as well as his or her perception of reality. The individual socialization process within a cultural system leads to a habitual application of its values and norms, that people are unaware of in daily life. Culture is therefore a process of "*repeated traditions, ... [and the] creation of spaces of meaning*" (e.g. local background or social milieu), based on "*[common] places, languages or experiences*" (von Lersner & Kizilhan 2017). However, culture has a dynamic structure as those spaces interfere with one another (von Lersner & Kizilhan 2017), before which the sense of coherence takes shape.

To address this in psychotherapy is mandatory but regarding to the definition above, accessing cultural norms and values of others is difficult if you are not specifically trained for this purpose. Intercultural knowledge is therefore the key to culture-sensitive psychotherapy. In this way, professional support can be guaranteed at a high level, which is the most important environmental factor for resilience (Kleefeldt 2018). The development of efficient interventions that will be culturally oriented and therefore accepted by their users serves a high need as Koç und Kafa (2019) emphasize. According to the authors this study is a first step of an

experimental path “for improving the efficiency and effectiveness of adapted therapies” (Koç und Kafa 2019).

Research Background

Our research study is based on many years of intercultural experience with the target group. In particular we have concentrated upon refugees from Syria and Iraq.

Results of this participatory research show that, upon arrival in their new host communities, integration is one of the biggest challenges that this target group faces. It is typically defined by the host community and changes over time (Howard et al. 2011), but the BAMF (Federal Office for Migration and Refugees) currently defines it in the following way:

“Integration is a long-term process. Its goal is to integrate all people who live permanently and legally in Germany into society. Immigrants should be enabled to participate fully and equally in all areas of society. To this end, they have a duty to learn German and to know, respect and obey the constitution and laws.”

Integration is difficult for many reasons. One of the main causes is the serious negative experiences that have been made at home and on the flight. Most refugees, especially the ones coming from a war zone, leave their home with only the bare necessities. If possible, they sell belongings to cover the costs for travelling to their host country (Die Zeit 2015). To get there, in most cases, refugees have to rely on the services of smugglers to board unsafe rafts to cross from Turkey to Greece (Die Zeit 2015) or to travel from northern Africa to Italy over the sea. Afterwards, they cross Europe using the so called “Balkan Route” (Die Zeit 2016a) (cf. Figure 1, Original source UNHCR 2018) to get to their final destination (Die Zeit 2016a).

While on the Balkan Route, they have to negotiate their way through countries with different governments who adopt different strategies towards handling this stream of people. This trip is very dangerous and thousands of people have been reported dead or missing during their attempt to reach safety (International Organization for Migration (IOM) 2016). After a long journey on foot or by rafts, taxis, buses and trains, a proportion of the refugees arrive in their host country, where they have to interact with the police, deal with the bureaucracy of the host government and, in many cases, with an unwelcoming environment for refugees created by political tensions.

A significant problem confronting this group is the multiple traumatic experiences they have had to contend with. Many have witnessed war or poverty in their home country and are seeking to escape from this. Mental instability hinders the integration process and can be severely harmful for the traumatized person if not properly worked through (Schneider et al. 2017). Without mental health support, personal difficulties resulting from stressful or traumatic events can ramify

and become a preoccupation, potentially leading to even more serious mental disorder(s). Therefore, in this study we tried to understand how refugees deal with their experiences, whether they consider themselves as being either infected by negative stress or trauma-impaired and the extent to which they seek help.



Figure 1: Sea Arrivals to Greece and the Onward Movement of Syrian refugees

Methodological Approach

Our recent research projects have been located within the Grounded Design approach (Rohde et al. 2016), which “*can be understood as writing a ‘grounded theory’ from design case studies by means of a comparative analysis of individual cases in their contextualized complexity*” (Stevens et al. 2018). The authors consider “*such an undertaking [to be] a suitable means of supporting reflective practitioners and gaining design-related insights*” (Stevens et al. 2018). We began

with ethnographic fieldwork, conducting open semi-structured interviews with refugees and experts in order to discover how these issues had come about. We also sought to get a holistic impression of the requirements that Psychosocial ICT will need to address when dealing with this specific group of people and their particular needs. As many people find it difficult to speak about the state of their mental health, trust was a key aspect of the study. Even if not suffering from trauma or mental illness, mental health remains a sensitive issue, so, during the interviews people were not asked their name. The home country, mother tongue, age and gender were the only demographic data requested.

Our interviewer could speak Arabic and already knew the participants in two of the interviews. Two of the others were recruited through these contacts, the other one was acquired by advertising online. The existing connections between most of the participants provided a further layer of trust. The interview questions covered topics about the flight to Germany, their current situation, any stressful or traumatic experiences (before, during and after the flight) and their current coping strategies.

To complete the perspective on the psychosocial health of refugees, we reached out to professionals and conducted three German interviews with psychologists to get their point of view. Further interviews were done with volunteers who work on a daily basis with our target group, where our focus was upon the daily concerns and experiences of the participants.

All of the interviews conducted in Arabic were translated into German by the interviewer and transcribed. The data collected from the interviews and observations was analysed by conducting a thematic analysis (Flick et al. 2004; Schmidt 2004). The analysis was undertaken by each of the authors and resulted in the topic areas *Flight background* and *negative stress events* as well as *Approaches to event processing*. To maximize the reliability of the results, we pursued a threefold triangulation strategy (Flick et al. 2004). First, we made sure that we had covered all of the relevant topics in all of the interviews. Secondly, we compared the interview data with the feedback from the psychologists and volunteers. Thirdly, we contrasted our findings with mass media coverage on refugees and their psychosocial health status.

The Interviewees

Despite its limited size, our interviewee sample covered a good range of refugee backgrounds (Table 1), with diverse levels of age, family, gender, social status and access to technology.

Table 1: Overview of the interviewed refugees

ID	GENDER	AGE	HOME COUNTRY	LANGUAGE	SPECIAL ASPECTS	INTERVIEW VENUE
P 1	Female	17	Syria	Arabic	Unaccompanied during the interview; the only minor	University of Siegen
P 2	Male	28	Syria	Arabic	-	University of Siegen
P 3	Female	40	Iraq	Arabic	-	University of Siegen
P 4	Male	29	Syria	Arabic/German	German wife accompanied him during the interview	University of Siegen
P 5	Female	28	Syria	Arabic	-	University of Siegen

P1 arrived in Germany with her sisters at the age of 14 as an unaccompanied minor (meaning she was without her parents). She used the Balkan route (Turkey, over the Mediterranean Sea to Greece and then through every country up until Germany on foot, by bus, or train (see Figure 1)). During their flight, she and her sisters were forced to work in Turkey for two years to save money for the remaining trip to Germany.

P2 and his friends were forced to leave their village in Syria and moved to Germany over the Balkan route. None of them wanted to join the military to fight the rebels. He now lives in a shared apartment with two Germans and has successfully completed his German language course in order to study at a university.

P3 left Iraq with her two children after her husband died. She got very ill during her escape to Germany and had to have surgery twice after her arrival. For the first three months, she lived in a refugee camp. She was the only participant who couldn't finish the interview. Her consent to the use of her data was subsequently confirmed.

P4 applied for a Master's degree and came to Germany legally, but then registered as a refugee so as to not have to return after his studies. He didn't want to return and have to do military service, about which he still has nightmares. The war was of continual concern to him because he had family back in Syria. He is married to a German woman.

P5 had been in Germany for 3 years and was currently trying to get her Bachelor's degree recognized. She had fled over the sea to Europe, despite not being able to swim. She had her son with her, who was only one year old during the flight.

The Psychologists

We interviewed three psychologists about their experience of working with refugees and sought their professional opinion regarding ICT solutions for psychosocial health (Table 2).

Table 2: Overview of the psychologists

ID	GENDER	BACKGROUND	VOLUNTARY WORK	LANGUAGE	SPECIAL ASPECTS	INTERVIEW VENUE
PS 1	Male	Professor of Clinical Psychology	No therapy experience with refugees but supportive work	German	Involvement in a big refugee project with insurance connection in the past	Psychotherapeutic office
PS 2	Female	Bachelor Psychology	Therapy of refugees for 1 year	German	Institution for psychological support of refugees	Psychotherapeutic office
PS 3	Male	Bachelor Psychology	Therapy of refugees for 3 years	German, Arabic	Institution for psychological support of refugees	Psychotherapeutic office

PS1 is a professor of clinical psychology and a psychotherapist. He doesn't treat refugees, but would like to actively participate in refugee assistance. He had acquired some experience with our target group in the past when involved in a large refugee project focused on insurance support.

PS2 has worked as a psychologist at an institute for psychosocial health of refugees since October 2017. She works very closely with social workers who handle the initial care for refugees. She herself works with 10 to 18 clients, although the rhythm of the sessions varies (weekly, two-weekly).

PS3 had previously worked in a reception centre with a large influx of refugees, where small children and teenagers from 10 to 18 years of age would come if their family was encountering problems. He has an Arabic background and speaks the language.

The Volunteers

In addition, three interviews were conducted with volunteers who support refugees during their daily activities and who are therefore aware of their experiences and levels of stress (Table 3).

Table 3: Overview of the volunteers

ID	GENDER	BACKGROUND	VOLUNTARY WORK	SPECIAL ASPECTS	INTERVIEW VENUE
V 1	Female	Social Worker	Since 1.5 years	-	Office of the interviewee
V 2	Female	Research Assistant	Since 3 years	Responsible for international student applicants	University of Siegen
V 3	Male	Paramedic	Since 3 years	-	University of Siegen

V1 is a social worker who has been working in refugee counselling for 1.5 years. Before that, she trained as a teacher and worked with children and young people in the disabled sector for over 8 years. In her work, she is confronted with the everyday problems of the refugees.

V2 teaches German to refugees at a university and is responsible for foreign applicants. The German courses take place on a daily basis and is for both children and adults. She is married to a refugee.

V3 has been working as a paramedic for 8 years and is involved as a volunteer in the general field of disaster control. At the peak of refugee arrivals in 2015, he set up a medical base with others and took care of the new arrivals.

Results

The following chapters present results from the two thematic topics, which were addressed by our participants. Here we focus on the individual stories of the refugees, since they also form the methodological focus within the EW.

Flight background and stressful events

Our participants had various reasons for leaving their home country. There were also strong differences in how their flight was pursued. Only 1 interviewee left legally (by plane) and on his own (P4). The others left in company, on foot, by train, or by bus (P1, P2, P3, P5). The reasons included wanting to survive an armed conflict (P1, P2, P4, P5), freedom and self-determination in terms of role identity (P2, P4) and economic issues (P1). In the case of P3, she was primarily concerned with the needs of her children.

For most of the interviewees, the flight to Germany was a challenging experience. They had to leave their family and dreams behind, “[...] well, my dream was to become a doctor in Syria.” (P1), for a dangerous journey across different countries and the sea: “[...] over the sea, of course, as they call it: The journey of

death.” (P2). These experiences built upon experiences of war in their home country, where some of them had witnessed the death of relatives (P1, P3, P5) and often only narrowly escaped death themselves (P1, P5) or had lived in fear of it (P2, P4).

The trauma brought on by these experiences often manifested itself through nightmares. P4, for example, kept actively dreaming about being in Aleppo and being drafted by the military to be sent to war. P3 meanwhile was having nightmares about her situation in Germany as she had lost her husband and was having to cope as a single mother with refugee status. She felt not only broken from fleeing on foot and across the ocean with two children whilst being seriously physically ill, she was also suffering from a sense of not being wanted. In Germany she did not yet feel integrated into the community she was living in, had infrastructural issues, lacked information and was struggling with the language barrier, despite having been in her new home for about nine months. Particularly, she felt unable to socially participate in the everyday life of the German inhabitants around her. Prior to this, they had been put in a refugee camp for three months, which caused her additional mental anguish. As she put it: *“My mental status was very bad and every day I cried in the camp”* (P3). She mentioned the large number of children from various different cultural backgrounds in the camp and the ever-growing conflict between them, the dusty ground they had to deal with on daily basis and her constant struggle to keep their clothes and accommodation clean. Now, she was concerned that her accommodation was full of insects and that barren area around her gave her no opportunity to resume the individual living habits she had acquired in Iraq, such as finding the food she wanted (especially meat that was halal): *“[...] there is not everything that we need and every day I have to cry and nothing is in my hands”* (P3). She also said that she had sought help at the social security office a number of times, without receiving any support:

“[...] I went very often and told them about my current situation, that I am suffering from huge stress and that I am sick, that I am losing a lot of blood, [...], but nobody helps me and I am always going home again and can't sleep and always cry and my kids scream and nobody is caring for us. [...] And the house is old and not nice and there is nothing beautiful around and I am very depressed.”

P2 discussed the intercultural challenges in the refugee camp and the problems of placement afterwards, where he was allocated accommodation where there was almost nobody else his age and the negative emotions this aroused. P2 had left his home country for the same reason as P4: to escape from being drafted into the war. To do this he managed to get to Germany more easily than the other participants, who were obliged to cross the sea, making the so-called ‘journey of death’. Despite the massive burdens associated with this and the fact of being separated from his loved ones for an indefinite period of time, he felt he was still well off compared to others who were still living in Idlib or Aleppo. Back home they had no attacks, just

military raids or kidnapping and the constant pressure and anxiety of being conscripted, he explained. He said he laid awake every night worrying about the past and the future, knowing that his parents were still exposed:

“At the moment the only problem I have is my parents. My thoughts stay with them 24 hours a day. No matter how happy I am, how much laughing and distraction is going on, there is no way to lose thought of them. Sometimes I am crying.”

P1, P3 and P5 had all lost close family members. P1 lost her father in the war when she was only eleven years old. Her own life back in Syria had been threatened several times by shots and bomb attacks, resulting in an ongoing fear of loud noises. Before she began the “journey of death”, she was trapped doing child labour in Turkey for two years trying to raise enough money to move on, which made her physically ill: *“In Turkey I had no dreams. I just went to work like a robot and went back home like that. I had no life goals at all”* (P1). After experiences of poor treatment by others and homelessness, with everything that it entails, she finally arrived in Germany. After her official interview P1 shared some further concerns. She told of her suffering from depression and anxiety, accompanied by loneliness, insomnia and shortness of breath, and driven by questions about the meaning of life itself, questioning the practices of people around her and the hope underlying them: *“Why is it our duty to live? I'm looking for the reason that'll get us to move on. [...] Why is somebody asking you to stay, if you'd say that you want to die? For yourself or for himself?”* (P1).

Psychologists and volunteers hear these stories as soon as they come into close contact with the refugees to help them in therapy or with their daily tasks. Many cannot conceive what the refugees have been through before, during and after the flight and feel overwhelmed as stated by V1: *“Some stories I'm overwhelmed with. Or with some stories I also have to say ‘stop’, no further, because I have to protect myself.”* Other volunteers also struggle to imagine the events they are told about, as noted by V3: *“At the end we all just sat in a circle and cried for a quarter of an hour, because somehow this intensity, this experience, this level of destiny, could knock you off immediately (...).”*

Of course, not only the volunteers felt overwhelmed by the things that had happened. V3 spoke about his experiences with refugees in reception camps, where he provided support as a paramedic:

„[...] in the moment where this information has taken place in your mind: ‘you have made it now you are safe now’, people have completely collapsed! Mentally as well as physically because they have always been in such a permanent tension before that they just had to function for themselves, for their own survival, for their families.“

He commented that mothers were especially affected by this.

Psychological experts are better equipped to deal with disturbing accounts. Still, PS2 sometimes took the more harrowing stories home:

“[...] you can make sure that you get some rest after work [...]. For example, you can develop a ritual [...]. Of course, it doesn't work all the time. [...]. I always try to say to myself [...], I help people and now they feel better. They're safe here, and what we give them [...] makes a little light shine. And that actually comforts me.”

Indeed, pathologies that appear in a lot of cases and add to the burden are trauma and depression or a combination of the two (PS3).

Approaches to event processing

Individual ways of coping with the above include avoiding news about the home country (P4), talking about what happened with people you trust (P4), or, contrariwise, not talking to anyone and retreating until your emotions are less raw, often supported by self-distraction (P2). Another possible way of handling things is maintain some kind of hope (P2, P4).

Only one of the interviewees was receiving therapeutic support at the time of their interview (P3). The interviewees who had so far refused professional help perceived therapy as something for traumatized people with whom they didn't identify. P4 explained that the definition of trauma seemed to be linked to culture and lifestyle when countering his German girlfriend who argued in his interview that he needed psychological support: *“No, I don't think so. But for normal people maybe [it seems that we are traumatized]”* (P4). V3 underlined this impression: *“What a German sociology student would call trauma would probably be accepted by an Afghan farmer just like that.”* Yet P4 was suffering from nightmares that weren't enough to convince him to seek help. Instead he continued talking to his girlfriend, just as P2 kept talking to his friends, which was itself rare due to their different mindsets.

Despite this, the participants did say they'd be open to having help if they really needed it. Although she was not very open to sharing her mental state with friends and family, P1 did feel a need to talk, but preferred to cope on her own in the first instance: *“If I am meeting someone, I am forced to wear a mask and pretend I am happy, because I don't like people to see me sad. That they should feel sorry for me. I don't like that. I don't ask anybody for help”* (P1). She believed that nobody would understand her anyway and that certain people might even be happy to see her suffer. She also felt a lot of anger, which could explode at any time, she said. She pointed to the pressure to succeed in the German school system, on which her life goals depended, and to the loss of a sense of home. The responsibility she now bore for her own life and its course caused her a lot of concern, which led her to conclude that life in Syria was better, despite the circumstances. After the interview P1 asked for support in getting in touch with a psychologist who might take into

account her financially-limited situation. She also commented that the interview itself – talking about her story – had made her feel much better and calmer.

The lack of health insurance can have an enormous impact on the willingness to seek the help of psychological experts:

“The problem with psychotherapy is always, that it is not allowed to be free of charge. This would be an occupational offence. So far this has been the biggest problem with treatment of refugees [...].” (PS1)

Once they have arrived at the point of treatment, it is essential to deal sensitively with existing traumas and to orient towards them appropriately, e.g. by adapting the therapist's gender in the event of rape as mentioned by PS3. PS2 also said that the language barrier needed to be overcome by involving interpreters. However, an increasing number of psychologists are able to speak Arabic. This development is more than welcome because it is difficult to involve third parties in therapy, not just because of time, but because the translation has to be word-for-word (PS2). She further expressed the view that trauma therapy must come first, then integration, because flashbacks interrupt the concentration that is needed to learn a new language:

“[...] first of all they have to be at peace with themselves and work through their history and then they can start to integrate properly. For example, some people find it really difficult to sit down in a language course and concentrate properly in order to learn a new language. Instead, they are still in their country or on the run in their thoughts.”

However, there are exceptions. For some it is helpful to create a social network and reconstruct their daily life first. Social support in the form of volunteering, which can ensure administrative guidance and include fulfilling activities and some inspiring new experiences, offer a good way of going about this (PS2). Voluntary consultations currently try to tackle all administrative hurdles, e.g. filling in documents for the authorities. Nonetheless, personal questions, for instance about being reunited with their families or about daily life in Germany, come to the fore here (V1).

Discussion

The insights from the interviews with the different stakeholders provided a holistic view of the various stressors that refugees are confronted with, which have arisen from difficult as well as traumatic life experiences in their home country, on the flight or after their arrival in Germany and are supported by new problems in dealing with them. They are accompanied by loss of control, insecurity due to unstable living conditions as well as adverse circumstances, personal losses and

lack of successful participation – all factors that weaken resilience (Kleefeldt 2018). Our results show a diverse and conflicting picture of how refugees think about professional therapeutic support. While they are mostly in favour of it, there is almost no action towards pursuing it due to individual, structural and social barriers (Schneider et al. 2017). For psychotherapy to look like an option, a number of variables, e.g. language, cultural understanding, and knowledge of the social structure and laws, have to be dealt with. Then people can actually see the possibility of and reach out for professional help to work on their mental condition. Yet it is their mental condition that often hinders them in managing to do this in the first place. This paradox can run ad absurdum, driving refugees into a cycle that they are unable to escape on their own. Becoming aware of your own mental health, accepting it, gaining motivation for receiving professional help, and finding out where to receive that help and how to do so, are all potential barriers to the integration of refugees within the (health) system in Germany. In view of this, we will now discuss the potential, challenges and benefits of using digital solutions and Poetry Therapy to help refugees cope with such challenges.

Poetry Therapy as a self-help method

As integration on the part of the refugee, as defined in our paper, can only take place if their personal mental status is stable and they are able to deal with the issues mentioned above (Schneider et al. 2017), which has been confirmed by PS2 for some of the patients, this approach is not only complementary to therapy but also a way in which people can recognize their own personal challenges and find the motivation to pursue a path towards better health. By using Poetry Therapy and especially EW, personal ways of thinking can be transformed through the inspection and overwriting of memories, thus increasing well-being and helping people to open themselves to their environment and augment their social capital (Pennebaker 1997; Horn and Mehl 2004; Heimes 2012). This could pave the way for professional support.

The use of such therapeutic methods via technical self-help tools can help refugees to gain insight into the many layers of their own personality revealed by their individual history. Within this framework, the different qualities of therapeutic writing, especially EW, can be activated, the sense of coherence consisting of comprehensibility, meaningfulness and manageability can be generated, and the resilience factors of self-perception and control, goal-orientation, problem solving competence, self-efficacy and successful handling of stress can be positively triggered. In this case suffering due to feelings of fear, shame and guilt decreases (Kleefeldt 2017) while self-confidence and emotional and psychological well-being increase (Thieme et al. 2015). Following Horn and Mehl (2004) the activating effect of writing also leads to an improved integration into social networks, which supports social well-being (Thieme et al. 2015).

Digitization can expand people's access to such proven therapeutic interventions, most of which are currently only used during therapy conducted in situ by psychological experts. Through the digitization of such methods and by offering them in a range of languages, new preventive opportunities arise that could support mental health by providing people with access to these methods by means of a digital self-help tool, whether it is a platform, an app, or a mixture of these things (Mestheneos and Ioannidi 2002). This could give a solid insight into all the information refugees need to understand their situation better, e.g. narrations or therapeutic tasks (Matthews and Doherty 2011). The form and structure of the tool would result in more independence to focus on the processes necessary for personal stability. In order to design such a tool, however, there are several complex challenges that need to be overcome.

Access

Refugees face many barriers in getting access to psychiatric support, compounded by individual barriers (e.g. feelings of shame, self-stigmatization, lack of language or knowledge gaps), structural barriers (e.g. not enough multilingual psychologists, a lack of psychologists in general, lack of intercultural knowledge on the expert side) and social barriers (e.g. stigmatization) (Schneider et al. 2017).

A digital solution can overcome most of these, but people need to be aware of it. It can, designed along the lines outlined above, be free of charge and mobile when linked to an app or online platform (Maitland et al. 2018; Gillespie et al. 2018). Here no financial disadvantages arise and the use is hidden from others, since it is only on a person's individual device. Digital solutions can also be designed in such a way that language plays no role. It does have the advantage of 24/7 availability and accessibility, when face-to-face care is not available (Bush et al. 2015). However, even the best designed e-mental-health tool can't help to support resilience and well-being without the cooperation of relevant stakeholders (Kleefeldt (2018). Here (peer) volunteers are especially important because they can take on the role of gatekeepers before experts even come to mind, which also saves the latter much time, serving the fact that the German system is lacking of psychotherapists in general (Bajbouj et al. 2018).

Trust Building

After getting access to the target group, future end users need to understand the idea of the self-help tool and to start using it. However, because of their preconceptions about therapy, they will need to overcome this intrinsic barrier in order to trust the tool and embark upon its application. But not only the end users have to gain this trust first, also the experts who will later interact with the system and the end user have to get to know the tool and trust in its positive results.

For all stakeholders trustworthiness can be created by adopting a Grounded Design approach (Rohde et al. 2016; Stevens et al. 2018), in which psychological

and social experts as well as peer groups work hand in hand during the design process and involve the end users themselves in order to acquire the cultural needs of all of them, e.g. their native language, values and norms (Thieme et al. 2015; Bratt et al. 2017). Getting to know each other within this process, sharing different stories based on personal experience, individual knowledge as well as emotions, either in the same language or by finding another way to communicate and exchange personal but also collective insights will not only help to promote the new technology in terms of its use, usability, user experience and acceptance, but will also help to shape it from the ground in a need- and future-oriented, intercultural and empowering way, which is absolutely necessary for tools that interact with different people from different cultural backgrounds, especially when located in psychosocial contexts (Franco et al. 2016; Bajbouj et al. 2018; von Lersner and Kizilhan 2017). Making intercultural communication part of the tool itself by creating a virtual community network serves as a social resource (Thieme et al. 2015; Dosono et al. 2016) to support identity work regarding personal awareness, change and collective sense making of new cultural norms and practices (Dosono et al. 2016) and thus promotes social well-being (Thieme et al. 2015) and trust. It also meets the resilience factor of social competence, which can develop positively against this background. However, as von Lersner and Kizilhan (2017) emphasized, this requires intercultural competence, the assurance of which can also be part of the socio-technical design by teaching it to all stakeholders, whereby experts in particular should receive training tailored to their role. By doing so, the focus on resilience expands from the individual level to that of the collective, as a first subsystem of the whole is addressed and changed here.

IT-Security

Another important factor for building trust is IT-Security.

Clearly, the tool would need to be fully anonymous and indicate why certain personal data are required and how they are stored and secured. In addition, data should only be collected where absolutely necessary and never beyond. As many of the interviewees had lived in countries with high levels of surveillance, they were aware what this kind of technology was capable of. By involving them in the design process from the beginning (Rohde et al. 2016), their concerns and experiences can be incorporated into a more transparent ICT solution, while being aware of what kind of data is collected and how it is processed. This high degree of transparency is essential for sensitive topics such as mental health.

Pathology Identification

An indispensable aspect of safety is the guarantee of pathology detection (Franco et al. 2016; Bratt et al. 2017) before or during the establishment of a direct connection with an expert, if this has not become available during writing sessions. This point is highly important to assure that people suffering from mental disorders

will not be left alone or without professional support when using the self-help tool as Poetry Therapy opens the door to one's own memories and linked emotions, which usually leads to a degenerative state of mind before emotional improvement (Horn and Mehl 2004).

This could be achieved in advance by integrating an assistant, chat-bot or artificial intelligence to identify symptoms or specific circumstances associated with mental disorders or, in the worst case, even suicidal thoughts. Alternatively, such case identification could also take place during the writing process by means of linguistic analysis, which is less visible, as recommended by Bratt et al. (2017). A positive identification would then have to offer the mediation to an expert in the case of mental challenges and insist on this for further use (Bratt et al. 2017).

Societal Constraints

Something not to forget about is the framework psychotherapy is grounded in. In Germany, as PS1 told us, it is currently hard to charge psychotherapy sessions with refugees. Other reasons why psychotherapy is hardly used by this group are a lack of knowledge about special offers, too short offers which take cultural aspects into account and reservations of experts towards the target group (von Lersner and Kizilhan 2017), which could be another reason for the shortness of offers.

The lack of knowledge about online self-help services can already be taken into account by the collaborative design of the various stakeholders in order to generate acceptance for the digital solution, so that experts can then incorporate the service into their own daily practice and disseminate knowledge about it further in their circles. Higher-level multipliers can also be integrated into project ideas. Reservations of experts can also be addressed and overcome by the socio-technical solution conveying intercultural knowledge and explaining possible cultural misunderstandings in order to train mutual understanding.

Lack of Resilience

Many of the volunteers get overwhelmed as stated by V1 and cannot adequately cope with the stories that have been told by refugees. V3 underlined this by sharing personal experience and the triggered deep sadness of the respective moment linked to this event. But even psychological experts take some stories home with them, as PS2 noted, without knowing how to get rid of them.

Self-care is key here and should be considered in the design process for all experts, but also for peers and end users, as the experiences of others can be harmful, especially if they are the same as one's own and act as triggers. Trainings, including writing itself or e.g. mindfulness, the development of rituals based on that, as PS2 already does, and mental hygiene in form of supervision could be options that could be integrated into psychosocial systems as focussed on in this study to ensure mental stability. This is not only important for experts but for the end users as well who count on them. Another possibility would be to expand the

spectrum of the writing platform itself and at the same time turn experts into permanent end users in order to ensure equal resilience support.

Limitations

Although a diverse set of interviewees were chosen, the number of refugees, volunteers and experts is too low to provide a properly detailed picture. However, the goal of this exploratory paper was to provide first results from an interview study with a vulnerable and hard-to-reach target group, so generalization was not one of its objectives.

A major limiting factor when conducting research in this field is obtaining access to refugees as many are not ready to speak openly about their mental problems, whilst others believe they are unaffected. Even if they are aware of their own mental status, they cannot simply seek professional help. Some, like one of our own participants, quit within the process of speaking out loud, because the emotions and the pressure of remembering past experiences became too stressful. On the other hand, there are refugees who are willing and able to speak about their problems, but who prefer to do this within their own trusted circle of friends or, when participating in research, after the recording devices have been switched off. Future studies need to address this particular issue by using different methodological approaches.

Conclusion

This exploratory paper has sought personal indications of mental difficulty amongst the vulnerable and culturally diverse target group of refugees who have experienced stressful life events or even trauma. We have shown theoretically that there is high potential for Psychosocial ICT to help, also that the challenges and benefits of digitalized therapeutic methods as EW can be highly effective. Studies indicate a positive trend toward the digitalization of these kinds of interventions, if linked to peer and psychological support as a complement to therapeutic face-to-face-interaction. For this, Psychosocial ICT needs to assure the correct identification of mental health issues and to ensure direct networking with experts. Above all, the social and cultural background of refugees make it particularly difficult to convince them to address their negative experiences in therapy. It could be shown theoretically that easy access to an online solution or a solution based on smartphone usage, could minimize the barriers of entry and financing, improve individual progress in terms of self-awareness and self-determination, and open the door to social resources, embeddedness and personal bonding, thus providing for long-term mental stability and their ability to maintain continuity in everyday life. It also helps to overcome language issues and supports the process of integration.

Therefore, we argue, future research needs to focus on transferring well-established concepts such as Poetry Therapy and Bibliotherapy into the digital world.

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