



Global challenges

Mental Health: Global Challenges Journal

MHGCI – 2022

Vol 5, Issue 2

ISSN 2612-2138

Editorial

Witness as Victim: Clinical Encounters with Children Who Observed Violence

Galina Itskovich

The Interdisciplinary Council on Development and Learning, New York, USA

Address for correspondence:

Galina Itskovich, LCSW, Inc, 1525 Marine Parkway, Brooklyn, New York, USA, E-mail: galaitsk@gmail.com

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Publisher: Sciendo (De Gruyter)

DOI: <https://doi.org/10.56508/mhgj.v5i2.144>

Submitted for publication: 23

June 2022

Received: 18 July 2022

Accepted for publication: 02

August 2022

Keywords

war atrocities witness, childhood trauma, body image distortions, trauma informed treatments

In the spring months of 2022, Human Rights Watch, the international humanitarian group, released stunning details of the carnage in the regions around Chernihiv and Kyiv that Russia left behind. In a report released from May 2022, Human Rights Watch stated that it was currently investigating 22 potential summary executions, nine other unlawful killings, six possible kidnappings, seven cases of torture and 21 reported incidents of other forms of “unlawful confinement in inhuman and degrading conditions” carried out by Russian forces against civilians. But even this report doesn’t take into account traumatic impact on witnesses. Having witnessed the crime once, the witness continues to see the world through the prism of the observed violence.

The National Child Traumatic Stress Network defines traumatic stress as the stress response to a traumatic event of which one is a victim or witness. Based on this definition, we can establish that the witness is considered traumatized as well, and the victim’s trauma is not less impactful on his/her mental health and psychological well-being. Watching the untoward, unimaginable acts when a human life or health are endangered creates psychological damage of extreme magnitude. During the Iraq war, the results of the psychiatric assessment of supporting military who were not involved in active combat demonstrated that their PTSD symptoms are roughly equal to / not less prominent than those of their fighting fellows. Watching other people’s suffering is toxic. When

the witness is a child, it complicates the assessment, as child witnesses may be discounted as “not understanding” or “not impacted”. Adults tend to think that children “quickly forget” and even report “better functionality” and “exemplary behavior” under stress. Yet, empirical and theoretical findings show that traumatic experience takes years to process. This is especially pertinent for young children as their sense of safety depends on the perceived safety of their attachment figures (NCTSN). Amplified emotional reactivity and a lack of control of events leave young children susceptible to stress symptomatology (Sossin & Birklein, 2006).

Little witnesses which, with the beginning of the Russian expansion, started pouring into clinical practices in Ukraine and around the world saw a lot, most impactfully, deaths of parents, siblings, neighbors and friends, rape and torture. A different kind of witnessing is presented by indirect exposure (via adult conversations or social media involving violence toward people personally known to the viewer). In some situations, children had to make critical decisions about own survival (for example, hiding under dead bodies) or about obtaining help for the victims.

Sossin (2006) refers to tension flow between a parent and a child and non-verbal aspects of stress transmission. Children expressed internalizing the emotional pain and experiencing physical aches as they were witnessing parents in pain, recalled thinking that “this was the end of me”, or, just the

opposite, felt numb and separated from/ floating above their own body.

Once the direct exposure is over, images that are consolidated into memories and overall experience of trauma can turn into legacy that shapes all future experiences. Triggers can appear at different junctures, reflecting on every aspect of the memory. Smells, sounds, touch, color, lights, specific movement pattern or constricted range of motion – any sensory stimulus can become a triggering event. Physical reactions such as increased heartbeat, sweating or bowel movements can also serve as reminders. Places, people, objects and situations reminding of the aggressor (as well as the victim) can initiate the associative process. For instance, a four-year-old who survived two episodes of shelling demonstrated a startled response when presented with a ball that was colored in rainbow splashes, as they reminded him of explosions; another preschooler said that the pen looks like a barrel of a tank. “According to embodied cognition, our body, in all its aspects (sensory, motor, and body–environment interaction), shapes and organizes our mind, including high-level features (like memory, concepts, and categories) and abstract tasks (like reasoning and judgment)” (Morasso et al., 2015). Traumatic response can be initiated at any point, whether by the memory or a bodily sensation, and then escalate to a full-blown flashback.

Identifying triggers and resulting behaviors can become an important instrument for understanding children's emotions and functioning in the long term. When we look at the families who fled the horrifying scene of atrocity together, they may present with shared triggers and, consequently, shared maladaptive behaviors. For instance, a mother of a child who survived shelling reported that she had to fight her own urge to hide while trying to convince her son to look at the July 4th fireworks.

No matter the modality, such reactions need to be brought up in clinical encounters. It's important not to be afraid to open up the box with terrifying or shameful event, even as a metaphor in the course of the play session. It is the reprocessing of trauma that allows to advance towards the acceptance of the past trauma and reintegration of the individual who survived it. Victor Frankl noted about his Auschwitz experience, “The only thing that we could control was the attitude towards what was happening” (). Such “attitude adjustment”, therefore, is the important aspect of the therapeutic work. Another crucial aspect is building trusting relationship with the child witness. The child can be angry at the significant adult(s) or generalize this anger to all and any adults for failing to protect

him/her. The child can later depreciate the role of adults, as part of identifying with the aggressor.

Psychosocial effects of witnessing violence can be divided into three categories:

- Externalizing (aggression/ identification with the aggressor, tantrums);
- Internalizing (withdrawal, anxiousness, depression); and
- Feigning social incompetence (antisocial, avoidant behavior or amotivation).

Pervasive sense of gloom and hopelessness, anxiety, overall depression, grief, anger, fear, distorted sense of the reality and lowered self-esteem – this is just a partial list of reactions to witnessing the atrocity. One more, easily predictable, effect is the loss of control that can be manifested in different contexts, right after the exposure and as a delayed onset. Because of the activation of the mechanisms of the autonomic nervous system, displacement takes place quite frequently. Interaction can start with the minor disagreement on a playground and escalate to the full-blown flashback and the symbolic reenactment of the episode where the child felt helpless in the face of the mortal danger. Child witnesses can also behave in the aggressive manner with other kids. If not addressed, this defense mechanism of identification with the aggressor can lead to later distortions and overall normalize violence in their lives.

Another widespread aftereffect is the survivor's guilt of significant intensity. We're not to forget that preschoolers look at the world from the egocentric, and therefore omnipotent, point of view. Not unlike the feeling of own helplessness, he or she can irrationally blame themselves, “I was bad, and mother was tortured,” or, “I didn't listen to the grandmother and now she's dead.” They later replay the heroic or aggressive scenes, alternately blaming and redeeming themselves. This play scenarios, if co-created and interpreted by a trauma-informed therapist, are pivotal for the process of psychological recovery and healing.

One more aspect of surviving the atrocity as a witness is learned helplessness. The child who has witnessed violence or atrocity can display regression of ADLs, loss of developmental milestones and flat affect, overall loss of emotional functionality, numbness, freezing or outbursts of aggression at the time of decision making.

Witnessing sexual violence: treatment approaches

Mass reports of rapes and other types of sexual assault from the regions around Kyiv rarely mention children who weren't physically harmed but became incidental or, in many described cases, intentional witness to crime. In one report from the paramedic, children in Bucha were forced to watch their parents' rape, torture and death. In addition to the obvious psychological damage, watching rape or sexual assault leads to the distorted body

schema. Since yearly in human development, we all have the internal image of what we look like. The process of developing the inner representation of one's own body ends as late as 8 years of age. Therefore, if we are to discuss preschooler or younger witnesses, they are subject to cognitive distortions in the way they perceive their own bodies. This may have top-down, as well as bottom-up consequences.

For instance, the distorted body image can reshape their motor planning skills and control over their own body in space, feeding and elimination behaviors, specifically, constipation. Psychodynamically speaking, defecation is symbolic of a loss of a body part. Therefore, many children witnesses may regress, "unlearn" toilet training or hold the feces. One of the useful techniques in addressing voluntary withholding feces is to let the child sit on the potty in front of a mirror or otherwise involve mirror images, letting him/her observe their own body and identify feces as substance that is totally different in color and consistency from the rest of the body.

Techniques to restore the inner representation of the body include games that involve identifying body parts, restoring or developing better body awareness via labeling motions and naming body parts, mirror games, spatial awareness, weight bearing activities. Pillow fight, for example, can be a productive technique to increase proprioceptive input and overall body awareness, provided that the child allows and tolerates touch. Obtaining permission for touch allows the child to reclaim full control over his/her own body. If the child is looking for the proprioceptive input but is adamant about not being touched, there are other means of forging physical contact such as building a tent, using a weighted blanket, setting up a play area near the wall or in the corner, therefore creating opportunity for sensing the parameters of his/her own body without feeling triggered.

To reiterate, safety continues to be the overarching goal. Physical safety in the therapeutic setting and at home, creating safe space and negotiating comfortable distance between the child and others will accelerate processes of psychological adaptation and healing. From the physical safety of good locks and reliable windows to creating trusting environment where verbalizations or memories are elicited only with the child's consent at a comfortable pace, - everything needs to be aimed at the creation of a **safe** space in every meaning of this word.

It makes sense to discuss the issue of control in greater detail. One of the pivotal conditions to regain control would be a symbolic repair of the child's world. Dis-membering of dolls and puppets and re-membering, in a sense of reassembly and building new connections, fixing what's broken and severed in the course of the symbolic play are aimed at recreating the whole from the parts, symbolic repair a.k.a. rebirth, restoring subjective

sense of control and omniscience. These goals can be reached by the means of puppet, figurines, and doll play, and using toys like Mr. Potato Head that allows to pull apart and then reassemble a human-like figure. Any theme chosen by the child will provide ample opportunities to act out this ritual of reassembly and symbolic rebirth. Keeping in mind the abovementioned possibility of aggressive behavior, it is important to remember not to shy away from aggressive play or disturbing scenarios generated by the playing child. It's crucial to stay with the theme offered and not to disrupt the game or "make everything alright" if the therapist him/herself is uncomfortable with the aggression. However, it is as crucial to repair everything that's been pulled apart or broken by the end of each session. Repair as many toys as possible, simultaneously involving the child into the symbolic restoration. Therefore, the therapeutic task of reassembling the safe world will be achieved.

Another important task is to create new rituals and routines, specifically, rituals and routines associated with the victim of violence, whether alive or deceased. As an example, a child who left his building at the time of the air raid and never came back nor ever saw his grandmother who'd stayed behind, gradually engaged in the memory game. We tried to identify what his grandmother looked like, what clothes she wore, what dishes cooked etc. We started to draw grandmother's portraits, restoring from memory different moments of the prewar life. Forgetting makes one feel guilty; rebuilding (and even reinventing) memories, on the other hand, is empowering.

As we work on these tasks, we do not rewrite the past but rather rebuild disrupted neural connections, reprocessing memories and modulating pain and post-traumatic reactions. Any trauma informed therapy, from EMDR to tapping techniques, can be useful now as long as the trusting therapeutic relationship continues to unfold. Additionally, the fact of mere presence of the permanent, non-threatening, safe respectful adult carries the healing properties.

The Ukraine Recovery Conference that took place in Lugano in July of 2022 introduced the term "children in early stages of vulnerability." While the proposed definition is, while understating, also too broad, it undeniably includes children who witnessed horrendous violence during the war unleashed by Russia. This paper merely scratches the surface when it comes to the tasks of clinical formulation and treatment of child witnesses, but it's important as ever to emphasize the multidisciplinary, multisystem approach. It will help the processes of comprehending specific therapeutic challenges and of successful

restoration of the sense of agency, trust, and safety for the young victims.

Conflict of interest

The author declares that she has no conflict of interest.

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What mental illness means in different cultures: perceptions of mental health among refugees from various countries of origin

Sarah Moses, David Holmes

University at Buffalo Jacobs School of Medicine and Biomedical Sciences, Department of Family Medicine, 955 Main Street Buffalo, NY, USA

Abstract

Introduction: Mental illness remains a significant issue for refugees worldwide. However, there remains a stigma surrounding mental health, mental illness, and mental health treatment throughout the world. Cultural stigma is just one of many barriers to mental health care for refugees that needs to be addressed.

Purpose: The purpose of this review was to distinguish the perceptions of mental health among refugees according to country of origin, because knowing these cultural differences can break some of the barriers and lead to better treatment approaches to mental health care for refugees.

Methodology: An extensive literature review of relevant articles published between 2000 and 2021 was performed using the databases APA PsycInfo, Global Health, MEDLINE via Ovid, CINAHL Plus with Full Text, and Google Scholar. The following groupings of search terms were used: (i) refugees, asylum seekers, displaced, and migrants; (ii) perceptions of mental illness, perceptions of mental health, and stigma of mental illness.

Results: There were numerous similarities and differences in the perceptions of mental health among refugees from different cultures. There were similarities in terms of mental health stigma, with certain cultures thinking of mental health/illness as taboo, as shameful, or associating it with evil spirits. A few of the cultures studied had similar ideas about the causes of mental illness, believing it was due to traumatic events or possession by evil spirits. The refugee groups had some common treatment options, including informal conversation, religious-based ideas, and community-level solutions. Some of the differences between refugees from different cultures involved certain symptoms associated with mental health, including physical symptoms, and differing degrees of religiosity.

Conclusions: This review of the perceptions of mental health held by refugees from countries around the world highlights the importance of cultural differences. Mental health care in this population should focus on cultural competency and community-level solutions and include mobile health clinics and telehealth.

Keywords

refugee mental health, perceptions of mental health, stigma, mental illness, mental health treatment

Address for correspondence:

Sarah Moses, MD, University at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Department of Family Medicine, 955 Main Street Buffalo, NY 14203.
e-mail: smoses2@buffalo.edu

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Publisher: Sciendo (De Gruyter)

DOI: <https://doi.org/10.56508/mhgci.v5i2.126>

Submitted for publication: 19 October 2021

Revised: 09 April 2022

Accepted for publication: 08 May 2022

Introduction

Mental illness remains a huge problem in the refugee population despite recent efforts to combat this unfortunate reality. Blackmore et al. (2020) conducted a meta-analysis and systematic review of the prevalence of mental illness in refugees and asylum seekers. Their review was conducted across 15 countries, and the prevalence of posttraumatic stress disorder, depression, anxiety disorders, and psychosis was determined. The authors found significantly more posttraumatic stress disorder and depression in refugees and asylum seekers than in the general population (Figure 1). By contrast, they found that the prevalence of both anxiety disorders and psychosis in refugees and asylum seekers was comparable to the prevalence in the general population (Figure 1). For most of the cases of posttraumatic stress disorder and depression, the rates of mental illness among refugees and asylum seekers were not only high but persisted for many years after initial resettlement. There was no difference in prevalence between refugees displaced fewer than 4 years and those displaced more than 4 years (Blackmore et al., 2020). Another systematic review from 2020 found considerably higher rates of mental health disorders and biological markers of persistent stress among refugees than among migrants and the general population of the host country (Byrow et al., 2020). As can be gleaned from the study of 15 different countries in the meta-analysis by Blackmore et al. (2020), mental illness is clearly prevalent in refugees arriving from many different countries and is not specific to one country of origin.

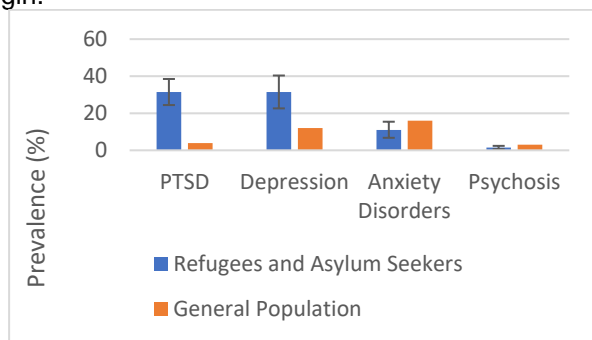


Figure 1. Prevalence of mental illness in refugees and asylum seekers compared to that in the general population (Blackmore et al., 2020).

Globally, the stigma surrounding mental illness remains an important issue due to its high prevalence and strong impact (Adu et al., 2021). Often, the stigma from mental illness is defined as context specific (Major & O'Brien, 2005). According to a 2021 review article by Adu et al., "Mental illness-related stigma is rooted in culture...it can be societal, familial, perpetuated by health professionals, or situated within the individual themselves" (Adu et al., 2021, p. 1).

With stigma playing a large role, there are numerous barriers to mental health care for refugees (Koesters et al., 2018). These barriers are at the patient level, the provider level, and a systems level. Barriers to mental health care at the patient level include cultural beliefs about mental health, linguistic barriers, lack of health care knowledge, distrust of authority or services, and financial strain. At the provider level, barriers involve faulty communication skills and a lack of cultural competency. At the systems level, there may be a need for more interpreters and improved reimbursement systems. Differences between host countries such as initial restrictions to health care access can also serve as barriers (Koesters et al., 2018). Many diverse approaches to overcoming these barriers have been implemented and studied in different countries with different refugee populations (Patel et al., 2014). Additionally, various types of interventions have been and continue to be tried and evaluated in a number of host countries (Giacco & Priebe, 2018). There are certain general principles that are being emphasized in the efforts to improve refugees' mental health care, including overcoming these barriers to care and promoting social integration (Giacco & Priebe, 2018).

The systematic review by Byrow et al. (2020) determined that the most important barriers that refugees have in seeking mental health care fit into three categories: cultural, structural, and refugee-specific factors. Cultural barriers include mental health stigma, (lack of) knowledge of major models of mental health, and social concerns. The review found that research participants in the 24 studies, who were all refugees, talked about mental illness in a negative way. Unfavorable cultural perceptions played an important role in these barriers: "One of the primary barriers to help-seeking behavior that has been consistently observed across populations, relates to perceptions of mental health and mental health treatment" (Byrow et al., 2020, p. 2). In consideration of this topic, "perceptions" may be defined as attitudes, beliefs, or knowledge about mental health. The review by Byrow et al. (2020) found that these mental health perceptions impact refugees' perceived need for mental health care and their engagement in mental health care. Therefore, mental health perceptions can provide additional knowledge concerning behavioral differences in the utilization of services in different populations (Andrade et al., 2014; Byrow et al., 2020). Overcoming refugees' barriers to mental health care is even more challenging because of the immense heterogeneity across different populations of refugees, host countries, and contexts (Koesters et al., 2018). Mental health perceptions differ between different cultures, with diverse explanations and beliefs behind them (Byrow et al., 2020).

Purpose

This article distinguishes the perceptions of mental health of refugees according to their country of origin, because knowing these cultural differences has the potential to improve refugee mental health care. If the culture-specific perceptions of refugees from various countries of origin can be better understood, taken into consideration, and utilized for treatment purposes, then the barriers to care will be reduced. Furthermore, this information could provide insight into better approaches to refugee mental health treatment that are more specialized, individualized, and therefore more effective for certain populations.

Methodology

Study design

This study was a comprehensive review. The following electronic databases were searched for original research and review articles that assessed perceptions of mental health among refugees from different countries of origin: American Psychiatric Association (APA) PsycInfo database, Global Health database, MEDLINE via Ovid, and CINAHL Plus with Full Text. This search included two groupings of terms (keywords): (i) refugees, asylum seekers, displaced, and migrants; (ii) perceptions of mental illness, perceptions of mental health, and stigma of mental illness.

Inclusion and exclusion criteria

Only relevant peer-reviewed articles published from the year 2000 to September 2021 were reviewed. Only articles that included the name of a specific group of refugees (from one specific country of origin) in the title were selected. Finally, only those articles that focused on refugees' perceptions, ideas, thoughts, or feelings about mental health were selected. Articles not published in English were excluded. Duplicate articles were excluded.

This search produced 4,405 results. Of these, only articles that included the name of any specific group of refugees (from one specific country of origin) in the title were selected. Of these, only those that focused on refugees' perceptions, ideas, thoughts, or feelings about mental health were selected. Sixty articles met the inclusion criteria. In addition, to find more information on specific topics, the references from some of the articles found were explored and utilized, and an additional search was completed on Google Scholar with the search term "refugee perceptions of mental illness." Of the 60 articles, only those that focused on one of four themes (causes of mental illness, symptoms and behavior associated with mental illness, mental health treatment, and mental health stigma) were ultimately included (Table 1). The search resulted in the review of

eight articles. All eight are primary research articles. Six of these were from the reference search and two were found on Google Scholar.

Data collection and analysis

Perceptions within the following four themes were identified in the reviewed studies: causes of mental illness, symptoms and behavior associated with mental illness, mental health treatment, and mental health stigma (Table 1).

Results

The perceptions of mental illness and mental health care among refugees from various countries of origin were categorized into the four themes described above. Overall, there were both similarities and distinctions among the five main refugee populations studied, which are outlined below.

Somali refugees

The Somali and Somali Bantu are the largest groups of foreign-born Africans in the United States and make up 45% of the African refugee population (Carroll et al., 2007; Johnson et al., 2009). A substantial proportion of Somali refugees, between 14% and 31.5% of the population, suffer from mental illness (Boynton et al., 2010). A pilot study by Bettmann et al. (2015) extensively examined the perceptions of mental health and mental health treatment in Somali and Somali Bantu refugees in the United States. The study found that this population mostly described mental illness in terms of observable behaviors. Of the 20 participants interviewed, seven of them believed that just hearing an individual's verbal expressions can determine whether someone is mentally ill. Overall, this population utilized the terms "worried," "crazy," and "stressed" as almost synonymous with various types of mental illness. There were several physical symptoms that the Somali refugees associated with mental illness (see Table 1). In terms of the stigma of mental illness, the authors explained that the refugees' perceptions of stigma were variable from one individual to the next (Bettmann et al., 2015). Palmer's (2006) study in London revealed a greater emphasis on stigma in certain Somali refugee communities: "For the overwhelming majority of Somalis, mental illness carries a certain taboo and has associations with madness" (Palmer, 2006, p. 51).

The study by Bettmann et al. (2015) examined the refugees' ideas of the causes of mental illness in detail. The Somali refugees attributed the causes of mental illness to many factors. Some of their descriptions seemed very situational and revolved almost exclusively around important events in an individual's life.

| Theme | Somali Refugees (Bettmann et al., 2015) (Palmer, 2006) | Burmese Refugees (Kim et al., 2021) (Fellmeth et al., 2015) | Syrian Refugees (Al Laham et al., 2020) (Kerbage et al., 2020) | Bhutanese Refugees (MacDowell et al., 2020) (Maleku et al., 2021) |
|---|--|--|---|--|
| Causes of Mental Illness | <ul style="list-style-type: none"> Worry, stress, wanting something unattainable, traumatic events, significant loss 50%: God causes illness 15%: Possession by evil spirits | <p>Kim et al. (2021):</p> <ul style="list-style-type: none"> Number one cause is past traumatic experiences Post-resettlement challenges: expectations unmet, difficult adjustment, loss of social support Possession by evil spirits Sinning in past life <p>Fellmeth et al. (2015):</p> <ul style="list-style-type: none"> Current economic, family, and domestic challenges Excessive worry | <ul style="list-style-type: none"> External stress including adverse living conditions Believed distress was a normal shared reaction to adversity Environmental/structural stressors: lack of fulfillment of basic needs Psychosocial stressors: loss of social or occupational role (including loss of social networks) Socio-cultural norms Possession by evil spirits | Emphasis on mind-body-spirit connection |
| Symptoms and Behavior Associated with Mental Illness | Associated many physical symptoms with mental illness: "sensations of heat coming out of the head, dizziness, poor vision, feeling that one's head is upside down, the inability to see letters, the inability to repeat what others say, feeling nauseous, and lack of appetite" (Bettmann et al., 2015, p. 744). | <p>Fellmeth et al. (2015):</p> <ul style="list-style-type: none"> Loss of control over emotions Inappropriate or abnormal social behavior Excessive worry Physical symptoms | Mental and physical symptoms (metaphors of external tension causing buildup of pressure and of being strangled) | Majority described people with mental health problems as unpredictable |
| Mental Health Treatment | <ul style="list-style-type: none"> Medical: "the majority" of participants believed in medical treatments Nonmedical: caring acts by the family or community (including informal talking) Religious: "the majority" of participants read the Quran, talking to the Imam | <p>Kim et al. (2021):</p> <ul style="list-style-type: none"> Alternative treatments such as praying and meditation Advocated for community-level solutions: education, training <p>Fellmeth et al. (2015):</p> <ul style="list-style-type: none"> Most commonly mentioned and first line: social and emotional support (talking with family and friends) Seen as more extreme: medication, hospitalization <p>Neither study indicated counseling as primary treatment option</p> | <ul style="list-style-type: none"> Initial treatment: seeing religious healers Advocated for community-level interventions with increased social engagement Only real solution is resettlement in new country | <ul style="list-style-type: none"> Majority believed there was no cure for mental illness Coping mechanism: support-seeking behavior (talking with family, friends, community members) Coping mechanism: physical, mental, and spiritual practices including yoga and walking Traditional religious rituals and customs |
| Mental Health Stigma | <ul style="list-style-type: none"> U.S. article: context and treatment dependent, variable London article: mental illness = taboo = associated with madness | <p>Kim et al. (2021):</p> <ul style="list-style-type: none"> Built into Burmese cultures Mental illness is possession by evil spirits or due to sins Mental illness is taboo, brings shame to the individual and family Mentally ill are mentally unfit to be around others Talking about mental health openly jeopardizes role in community | <ul style="list-style-type: none"> Mental illness is associated with shame and fear Mental illness is an internal dysfunction or "craziness" within Mental illness is possession by evil spirits | <ul style="list-style-type: none"> 57.7%: the term "mental illness" causes them to feel embarrassed 52.2%: it brings shame to attend counseling, is seen as a sign of weakness >71%: those who seek counseling are viewed in an unfavorable manner Mental health is taboo Mentally ill are seen as incapable |

Table 1. Comparison of refugee mental health perceptions according to country of origin

Half of the refugees studied believed that God was the cause of mental illnesses. As one woman explained, “Everything is because of God. You get better because of God and you get sick because of God” (Bettmann et al., 2015, p. 746). In terms of managing mental illness, “the majority” of the Somali refugee participants did believe in medical treatments, including medicine, going to the hospital, and seeing a doctor (Bettmann et al., 2015, p. 747). However, they felt that talking to doctors was a form of assessment but not a form of treatment. If talking were to be utilized to manage mental illness, it was informal and with a family member or friend (Bettmann et al., 2015). Palmer’s (2006) study indicated that Somali refugees in London viewed many available psychiatric treatments with mistrust. The Somali refugees in the U.S. study discussed many nonmedical treatments for mental illness. Reading the Quran, as reported by “the majority of participants,” was a treatment method for all illnesses, and mental illness was no exception (Bettmann et al., 2015, p. 749). The Somali refugees explained that Imams, who are Islamic religious leaders, served important roles in the treatment of mental illness by visiting patients and reading the Quran for the family. Moreover, almost half of the participants stated that individuals with mental illness were kept at home while they were ill (Bettmann et al., 2015).

Burmese refugees

Burmese refugees are among the largest of the refugee groups in the United States; between 2002 and 2019, around 178,000 refugees resettled in the United States from Burma, otherwise known as Myanmar (Admissions and arrivals, 2019). A study by Kim et al. (2021) on the perceptions and barriers to mental health services in refugees from Burma discussed three themes: sources of mental illnesses, barriers to service use, and working toward community solutions. These Burmese refugees believed that the number one source of mental illness was past traumatic experiences and that memories of these experiences persisted for decades. The other major source reported was post-resettlement challenges. In terms of barriers to mental health service use, there was a glaring lack of understanding of mental health: “Mental health is a new concept to most refugees from Burma” (Kim et al., 2021, p. 967). Most of these individuals had never lived where mental health services were available. This lack of knowledge led to an inability to recognize mental health problems and to access treatment. Language difficulty was frequently cited as a barrier, especially because of the lack of an appropriate translation of the term “mental health” (and other mental health terminology) in these refugees’ languages. Another major barrier to care was cultural stigma: mental health stigma is ingrained in Burmese cultures. A common faith-based belief

is that mental illness occurs in someone who has sinned in a past life. When discussing mental health management, these refugees emphasized the need for community-level solutions, including widescale education and training programs for all individuals in the community (Kim et al., 2021).

In addition, another study exclusively looked at pregnant refugee and migrant women from Myanmar who were currently living on the Thai-Myanmar border (Fellmeth et al., 2015). This population was studied because of the high prevalence of mental illness during a woman’s childbearing years (Stewart et al., 2003). Specifically, the rates of mental illness are up to three times higher during the perinatal period than at other times in a woman’s life (Gavin et al., 2005). When questioned about the causes of mental illness, these women emphasized current challenges in addition to excessive worry (Fellmeth et al., 2015). In contrast to the study by Kim et al. (2021) previously discussed, only one of the 92 pregnant participants believed that trauma can contribute to mental illness. This article provided possible explanations for these contrasting results, including the methods used to elicit information and this specific population’s protective factors. A minority of participants believed that spirits caused mental illness. When suicide was discussed, these female refugees described suicide almost exclusively in terms of shame. As an example of shame leading to suicide, the study quoted one of the participants, “One girl I knew killed herself because she lost some expensive jewelry and felt ashamed when her family was angry with her” (Fellmeth et al., 2015, p. 6). Additionally, these refugees believed suicide was not necessarily caused by mental illness and described suicide as a separate condition. In terms of managing mental illness, the most commonly mentioned first line of treatment was social and emotional support from talking with family and friends. These refugees from Myanmar thought both medication and hospitalization could be utilized as management strategies, but these were frequently seen as extreme measures (Fellmeth et al., 2015).

Syrian refugees

Since the beginning of the Syrian civil war, over one million Syrians have fled to Lebanon (Syria regional refugee response, 2019). A study in Lebanon looked at the mental health perceptions and experiences of Syrian refugees in mental health treatment and of Lebanese mental health professionals (Kerbage et al., 2020). Similarly to the refugees from Burma, Syrian refugees associated mental illness with stigma, shame, and fear (Al Laham et al., 2020). The Syrian refugee participants, who were in mental health treatment, believed the greatest causes of their emotional distress were environmental and psychosocial stressors (Kerbage et al., 2020). Sociocultural norms, which were inevitable in

many cases, also appeared to be intimately connected to mental health for some individuals (Al Laham et al., 2020). Additionally, they felt that their emotional distress was a normal shared reaction to adversity that everyone in their community was feeling (Kerbage et al., 2020). In terms of their specific symptoms of emotional distress, these Syrian refugees in treatment believed that all displaced Syrians were experiencing these same symptoms. Interestingly, it was common for the Syrian refugees to describe their mental distress as a buildup of pressure. They saw mental illness as an internal dysfunction or “craziness” within an individual and therefore did not attribute how they were feeling to mental illness. At the same time, their practitioners and policymakers (professionals) viewed the distress of these individuals as symptoms of mental illness (Kerbage et al., 2020).

Another study on Syrian refugees in Wadi Khaled, a specific community within Lebanon, revealed that mental illness was associated with religious beliefs and the supernatural, including the idea of possession by evil spirits (Al Laham et al., 2020). Syrian refugees advocated for community-level solutions (Kerbage et al., 2020). Whereas the professionals were recommending short-term interventions for these refugees, the refugees believed that the only real solution to their social and mental health problems was resettlement in a new country (Kerbage et al., 2020).

Bhutanese refugees

Bhutanese refugees are another major population of refugees who have resettled in the United States (MacDowell et al., 2020). A study by MacDowell et al. (2020) on these refugees revealed that this group generally exhibited negative perceptions of mental illness and mental health treatment.

Cambodian refugees

Lastly, Wong et al. (2006) studied barriers to mental health services in Cambodian refugees from the largest Cambodian refugee community in the United States. A majority of the barriers reported were structural, including the high cost of mental health services, linguistic difficulties, and transportation issues. Interestingly, Cambodian refugees reported cultural barriers much less frequently. Less than 6% of Cambodian refugees endorsed any mental health concerns related to stigma, disapproval from family, lack of confidence in Western medicine, or a higher level of confidence in indigenous treatments (Wong et al., 2006). Aside from this information, the data on Cambodian refugees were limited.

Summary of similarities between different refugee groups

- Causes of mental illness:
 - o Traumatic events (Somali, Burmese)
 - o Possession by evil spirits (Somali, Burmese, Syrian)

- Physical symptoms associated with mental illness (Somali, Burmese, Syrian)
- Mental health treatment:
 - o Informal talking with family and/or friends (Somali, Burmese, Bhutanese)
 - o Religious (Somali, Syrian, Bhutanese)
 - o Community-level solutions (Burmese, Syrian)
- Mental health stigma:
 - o Mental health/illness is taboo (Somali, Burmese, Bhutanese)
 - o Possession by evil spirits (Burmese, Syrian)
 - o Associated with shame (Burmese, Syrian, Bhutanese)
 - o Mentally ill are mentally unfit/internally dysfunctional/incapable (Burmese, Syrian, Bhutanese)

Discussion

The results indicate that there are many differences and many similarities in the perceptions of mental health among refugees from different countries of origin. The cultures of refugees greatly influence how they think and feel about mental health. The commonly reported causes of mental illness included traumatic events and possession by evil spirits, and physical rather than psychological symptoms were often emphasized. The frequently stated mental health treatment options included religious methods and informal conversations. Overall, the mental health stigma was very prevalent, with multiple refugee groups regarding mental illness as taboo or shameful.

This review is novel in its inclusion and comparison of refugees from numerous countries of origin. To date, most of the research has focused on a specific population of refugees from one cultural background. The study of refugees' perceptions of mental health has the potential to aid the refugee mental health crisis. The article by Kim et al. (2021) on Burmese refugees emphasizes the importance of addressing the mental health problems of refugees: “Unrecognized and untreated mental health issues may interfere with or even prevent refugees from successful integration into the host society” (Kim et al., 2021, p. 966). To give refugees a fair chance of integrating into their new society, mental health problems must be tackled. Furthermore, awareness of cultural perceptions of mental health can offer valuable information to service providers and policymakers (Andrade et al., 2014). When studying Syrian refugees and professionals, Kerbage et al. (2020) reported that, “Among professionals, 56 of the 60 repeatedly highlighted Syrian culture as the main challenge to working with Syrian refugees. They considered it an obstacle to the efficient provision of mental health care” (Kerbage et al., 2020, p. 5). However,

the culture of one population of refugees can differ immensely from that of another refugee population; therefore, studying one culture in isolation is not sufficient. In their research on Burmese refugees, the authors determined, “a one-size-fits-all approach will not work with refugee communities because of their inherent ethnocultural and linguistic heterogeneity,” further reiterating the need for culturally specific mental health care (Kim et al., 2021, p. 970).

Bettmann, et al. were solely focused on Somali refugees when they stated, “In order to effectively approach and treat mental health issues in a population, it is imperative to first understand some of the population’s basic beliefs surrounding mental health” (Bettmann et al., 2015, p. 741). Nevertheless, some of their findings about the mental health perceptions of this population were similar to the perceptions found in other refugee populations from different cultures. Therefore, some of their recommendations could prove useful in these other refugee groups. The studies on the Somali refugees, Syrian refugees, and the pregnant Burmese refugees all found that physical symptoms were frequently reported when discussing mental health issues (Bettmann et al., 2015; Fellmeth et al., 2015; Kerbage et al., 2020). Western-trained physicians often carry a dualistic body-versus-mind perspective (Kirmayer et al., 2011). It would be helpful for all medical doctors treating these populations of refugees to learn more about the ways in which common mental illnesses may manifest in physical symptoms in order to more efficiently and effectively determine the etiology of these symptoms (Bettmann et al., 2015). Similarly, in the specified cultures, symptoms of mental illness were described more in physical terms, such as the widespread Somali description of a buildup of pressure, which may initially seem to be a physical symptom (Bettmann et al., 2015). Therefore, it would be beneficial for doctors working with refugees to learn about some of these common physical descriptions and to consider that seemingly physical descriptions may reflect their cultural interpretation of their mental health symptoms.

In these three groups of refugees, substantial benefit can come when mental health professionals work closely with medical doctors to treat mental illness in a more holistic manner. The potential of this type of strategy is exemplified in a community health center in Boston where both medical doctors and mental health professionals work, which has led to increased referrals to mental health care (Bettmann et al., 2015). One potential solution could be to implement mobile health clinics that treat both physical and mental health issues. These clinics could even provide social needs such as housing and transportation as an additional component. Im et al. (2021) applied a multitier mental health and psychosocial support services (MHPSS) model to provide

mental health care to refugees in a holistic manner. Their approach was built on existing MHPSS models, which are used in some refugee communities, and emphasizes trauma- and culture-informed care. Refugees have multilayered mental health needs that can benefit from the coordinated systems of care and the holistic framework proposed by Im et al. (2021). The use of more integrative models for mental health care in refugee communities could provide many advantages for refugee mental health.

Because the cultural stigma surrounding mental health is widespread, the suggestions by Kim et al. (2021) for Burmese refugees would likely be helpful for other refugee populations as well. Mental health stigma is so entrenched in Burmese culture that even speaking about mental health openly jeopardizes one’s role in this community; thus, Burmese refugees need indirect approaches to mental health. Primary care doctors for these refugees need to provide encouragement and referrals. This is because primary care physicians are “the most effective way of getting [Burmese] people to use mental health services... ‘they won’t go on their own voluntarily’” but “would follow through with their physician’s recommendations” because they are viewed as trusted professionals and authority figures (Kim et al., 2021, p. 969). Because of the power of primary care physicians in the eyes of many refugees, there should be routine refugee mental health screening in primary care settings. In addition, the importance of cultural competency must be emphasized to primary care doctors and mental health professionals working with any refugee populations in order to effectively interact with patients and their families (Kim et al., 2021). Practices that treat even a small number of refugees should require training in culturally sensitive care (Byrow et al., 2020). Mental health practitioners would benefit from learning and utilizing the DSM-5’s cultural formulation interview guide as a tool to provide culturally sensitive and individualized treatment while also enhancing the therapeutic alliance (Byrow et al., 2020).

Studies of the perceptions of mental illness in the Somali, Syrian, and Bhutanese refugees revealed that these groups share a strong focus on religion (Al Laham et al., 2020; Bettmann et al., 2015; Maleku et al., 2021). The study on Syrian refugees in the rural area of Wadi Khaled in Lebanon described that, in this community, religious healers are culturally acceptable and less stigmatizing to go to for mental health problems than mental health professionals (Al Laham et al., 2020). This article even described working with religious healers as the “key to identifying [mental health] symptoms and creating referral pathways to [mental health] professionals” (Al Laham et al., 2020, p. 875). Similarly, the article by Bettmann et al. (2015) discussed how refugees’ spiritual explanations and treatments of

mental illness cannot be disregarded. Instead, mental health practitioners should directly address these spiritual aspects and attempt to use these strongly held beliefs to help them understand a patient's symptoms and trajectory (Bettmann et al., 2015). It is imperative that mental health professionals working with all three of these refugee groups collaborate not only with religious healers and other religious leaders but also with any additional community leaders. Mental health and public health professionals could spend time teaching religious leaders about mental health problems and the benefits of medical treatment, counseling, and group therapy. These professionals could then encourage the leaders to share this education with their followers, such as by talking about mental health issues in sermons, classes, seminars, newsletters, or social media. In addition, the professionals could ask these leaders to encourage their followers to seek help for mental health problems and not suffer in silence. It would be very beneficial for religious leaders to inform their followers that suffering from mental health problems does not mean that the sufferer has sinned, that he or she does not have enough spiritual faith, or that this is God's punishment. On the contrary, mental illness is a disease, similar to high blood pressure or any other physical condition, and should be treated this way. Understanding this and hearing it from one's religious or community leader could decrease the guilt and shame that so many feel when they are having mental health problems.

Because the religious, traditional, and familial practices are deeply valued in the Somali, Syrian, and Bhutanese cultures, these practices need to be considered and likely incorporated into any mental health treatment plan. Working with family was commonly seen as an initial step in mental health treatment in the refugee populations reviewed; thus, the involvement of family and community members in assessment and treatment may provide more effective care. The incorporation of family members would be especially beneficial for certain refugees from Myanmar, because the pregnant refugees' most commonly used treatment was emotional and social support from family and close friends (Fellmeth et al., 2015). The involvement of family would also benefit Bhutanese refugees, who discussed seeking social support in order to cope (Maleku et al., 2021).

Although there were several distinctions between the mental health perceptions of refugees from different cultures, there were also many similarities. Therefore, it is crucial to include some general recommendations for refugee mental health care. Providing community-level solutions is essential. This would include education and training for community leaders in addition to education for all individuals within refugee communities (Kim et al., 2021). In all

refugee groups, there is a need for increased mental health literacy pertaining to overall mental health, mental illness, and treatment for individuals struggling with mental health problems. The study on pregnant refugees from Myanmar emphasized the importance of psychoeducation, particularly because only one participant believed that trauma could cause mental illness (Fellmeth et al., 2015). In reality, the trauma that so many refugees experience contributes to the development of mental health problems (Johnson & Thompson, 2008). Because "translation difficulties, in combination with a lack of understanding about mental health, aggravate cultural stigma," increased mental health literacy could help to reduce stigma (Kim et al., 2021, p. 970).

In addition to psychoeducation's potential to decrease stigma, refugee communities could also incorporate public stigma interventions that focus on changing culture-specific negative perceptions of mental illness (Byrow et al., 2020). Even just altering the language used when discussing mental health could have an impact. For example, Kerbage et al. (2020) noted that Syrian refugees thought of the MHPSS as a source of support and felt it was helpful and provided them with a safe environment to talk about their problems. However, they did not consider MHPSS to be a specialized clinic, the idea of which may have turned many refugees away (Kerbage et al., 2020). Psychoeducation and improved mental health literacy would not only impact the initiation of care but also help with treatment adherence and maintenance when individuals have a better understanding of the science of mental illness.

Another potential approach to break the barrier of mental health stigma is to use telehealth and mental health apps. Refugees could use their phones or any other electronic device for psychiatry visits, counseling sessions, or self-help interventions. This approach might encourage refugees who fear the stigma of treatment to seek mental health care. This is because telehealth visits and mental health apps can be used in the privacy of one's own home, out of view of anyone who patients might worry would look down on them for getting mental health treatment. Telehealth and apps could also help refugees start mental health treatment and then act as a bridge to in-person visits with mental health professionals if needed. In addition to acting as a bridging aid, these approaches may be used to augment or complement other types of mental health treatment. Therefore, both telehealth and mental health apps could "lower the threshold for refugees to seek help" (Golchert et al., 2019, p. 2). These mental health interventions would also allow for greatly increased flexibility in terms of both treatment time and location. One example of mobile mental health is Step-by-Step (SbS), a culturally adaptive e-mental health intervention

developed by the World Health Organization for depression (Burchert et al., 2019). In a study on the usage of SbS among Syrian refugees, Burchert et al. (2019) found that "The majority of the respondents reacted positively to the presented app prototypes, stressing the potential health impact of the intervention (n = 28; 78%), its flexibility and customizability (n = 9; 53%) as well as the easy learnability of the app (n = 12; 33%)" (p. 1).

In addition, enhancing the sense of community felt by refugees could have a major effect on refugee mental health (Kim et al., 2021). This could be accomplished by facilitating social engagement to establish better ties to their community. For most refugees, community and social connections are lost when they come to a new country (Kim et al., 2021). In contrast to these general recommendations that apply to most of the refugee groups reviewed, it would be more appropriate to suggest approaches to improve the structural aspects of mental health care in Cambodian refugees, because this population did not report culturally based mental health barriers and had less concern about stigma (Wong et al., 2006).

Limitations of the study

There are some limitations to this review. There was heterogeneity among the studies in terms of the methods, protocol, and measures used. These studies were also conducted in different host countries, which have variable income levels and barriers to care. Although the reviewed studies on Syrian refugees and refugees from Myanmar took place in Lebanon and the Thai-Myanmar border, respectively, the rest of the reviewed studies occurred in the United States or the United Kingdom (London) (Al Laham et al., 2020; Fellmeth et al., 2015; Kerbage et al., 2020). As Byrow et al. (2020) emphasized regarding their review, "Given that most studies included individuals living in a high-income resettlement country, these findings may not be generalizable to individuals in other countries," especially considering that the majority of refugees are located in developing countries (Byrow et al., 2020, p. 18). Because the study designs were generally not longitudinal in nature, there is no way to know how perceptions may have changed over time. Byrow et al. (2020) felt that the duration of resettlement and associated variables could greatly impact a refugee's knowledge about mental health and the best treatment strategies.

Future directions

There are many possible future directions. It would be helpful to examine different refugee cultures in a more standardized manner. This could be accomplished with a study that looks at

more than one population of refugees, which would enable standardization of not only the major themes assessed but also the methods and measures utilized. A study that looks at multiple populations of refugees in a single host country would achieve even greater uniformity. It would also be interesting to use longitudinal research designs to determine if and how the mental health perceptions in the populations studied change over time. Longitudinal studies would also enable researchers to determine if there are key time points when certain mental health treatment interventions or programs are most effective (Byrow et al., 2020). In addition, it would be useful to determine whether there are associations between mental health perceptions and specific mental health treatments that are efficacious. Research that utilizes culture-specific mental health perceptions to create interventions for different refugee groups would enable us to see how specialized mental health services make a difference in the mental health outcomes of refugees.

Conclusions

This review studied the perceptions of mental health, mental illness, and mental health treatment among refugees from various countries of origin, unlike previous studies that focused on one group of refugees. From this review, it is clear that refugees' thoughts and feelings about mental health are impacted by their specific cultural group. Refugee groups varied in terms of their opinions about the causes of mental illness and the treatment options emphasized by them. However, mental health was similarly stigmatized as taboo and perceived as a shameful dysfunction, and treatment options frequently revolved around religion and informal family assistance. Furthermore, physical symptoms of mental illness were often highlighted, and mental illness was commonly thought to result from traumatic events and possession by evil spirits. Interventions to address the refugee mental health crisis should take cultural background, including cultural perceptions of mental illness, into account. Specifically, refugee mental health care could be improved with more integrative treatment methods, greater involvement of primary care practitioners, psychoeducation of community leaders, telehealth, and more culturally oriented approaches.

Funding Sources

This project was partially funded from a grant from the University at Buffalo Foundation/John E. Brewer Global Medicine Endowment Account problems associated with psychoactive substance abuse (Cabinet of Ministers of Ukraine, 2017).

Conflict of interest

The authors declare that they have no conflicts of interest.

Acknowledgements

We thank Nell Aronoff and Karen Dietz, PhD for assistance in writing, reviewing, and editing this manuscript. This work was supported by the University at Buffalo Foundation/John E. Brewer Global Medicine Endowment Account

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Mental health policy reactions during the first year of the COVID-19 pandemic in two worst-hit WHO European countries: a narrative review and lessons for the aftermath of mental health care.

Ekin Dagistan

European Student Think Tank, Public Health and Policy Working Group, Amsterdam, Netherlands

French School of Public Health (Ecole des Hautes Etudes en Santé Publique), Paris, France

Abstract

Introduction: The COVID-19 pandemic has been challenging the health care systems and public wellbeing unprecedentedly. The United Kingdom and Turkiye were the countries worst hit by the pandemic in the World Health Organization European region.

Purpose: This review investigated the mental health policies in these countries which draw a contrasting pattern of mental health care, sociodemographic background, and income level. Following the investigation, we recommended the possible directions to be pursued by European policymakers

Methodology: The documents were picked from the health policy sections from the websites of international organizations (European Parliament, OECD, WHO, UN), online data and policy reports of national ministerial bodies, and general web search. Later, the papers were reviewed and the author identified the main concepts of the responses to discuss after policy review. The study was designed as a review; therefore, no statistical framework was conducted.

Results: Identified concepts were as follows: a) continuing service provision for people with mental health conditions, b) digital mental health care interventions, c) building psychological resilience for citizens.

Conclusions: A strategy only focusing on treating mental health conditions will not be sustainable during the post-pandemic era. It is essential to address mental health in all policies to foster a strong mental health care system.

Keywords

Mental health care; COVID-19; mental health policy; mental health; public health.

Address for correspondence:

Ekin Dagistan, French School of Public Health (Ecole des Hautes Etudes en Santé Publique), Paris, France. Email: edagistan@gmail.com

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Publisher: Sciendo (De Gruyter)

DOI: <https://doi.org/10.56508/mhgci.v5i2.141>

Submitted for publication: 17

May 2022

Revised: 28 July 2022

Accepted for publication: 27

August 2022

Introduction

The COVID-19 pandemic has been challenging the regional and global health care systems unprecedentedly since it started more than two years ago. Mental health care systems and public well-being have also been taken a toll

due to the pandemic-related regulations and socio-economic era (Racine et al., 2021).

Psychological well-being is strongly connected to various personal, interpersonal and economic elements such as financial situation, employment status, physical well-being, and sufficient human interaction (Kaplan et al., 2008; Santini et al., 2020; Romash, 2020; Romash et al., 2022). These elements have been affected drastically during the

pandemic. Consequently, according to the Organisation for Economic Co-operation and Development (OECD), the prevalence of anxiety and depressive disorders increased in many countries in 2020 (OECD, 2021b). This increase can be considered as response to an unexpected disaster; nonetheless, the long and medium-term effects of the pandemic are likely to become detrimental to public mental health.

Due to the aforementioned concerns, the governments immediately mobilised their mental health policy strategies against the rapidly progressing pandemic. As anticipated, many studies hitherto showed that both the pandemic and public health measures provoked distress amongst various populations (*Mental Health and COVID-19*, 2022; Racine et al., 2021).

According to the World Health Organization (WHO) data, The United Kingdom (UK) and Türkiye were two of the countries worst hit by the pandemic in the WHO European region during the first year of the pandemic (*WHO Coronavirus*

(*COVID-19 Dashboard*, 2021). The tsunami effect of this disaster has been felt almost in every part of the world, yet the populations of these countries became more susceptible in terms of having insufficient healthcare and lack of support for their well-being.

A snapshot of pre-COVID conditions and COVID-related fiscal and lockdown policies in Türkiye and the UK

The pandemic hit hard the healthcare systems all around the world, regardless of the income levels of the countries. This section provides data about the pre-pandemic conditions and COVID-related measures of the two countries.

In 2017, the gross domestic product (GDP) level per capita was equal to 10,591 US Dollars (\$) in Türkiye whereas it was \$40,361 in the UK. The UK spent 9,8% of its GDP (\$4,070) on its health care sector, whereas Türkiye managed to allocate 4,2% of its GDP (\$1,227) (Table 1).

Table 1: Summary of Health and Financial Profiles of Türkiye and the United Kingdom

| Country | Population size | Income level | GDP per capita (US\$) | Health care spending per capita (USD) |
|--------------------|-----------------|---------------------|-----------------------|---------------------------------------|
| Turkey | 83,429,607 | Upper middle-income | 10,591 | 1,227 (4,2 % of GDP) |
| The United Kingdom | 66,836,327 | High-income | 40,361 | 4,070 (9,8 % of GDP) |

GDP-Gross domestic product,
US \$- the United States Dollar

Source: World Bank data (*Data for Türkiye, United Kingdom | Data*, 2017; *World Bank Country and Lending Groups – World Bank Data Help Desk*, 2021), OECD Health at Glance 2019 (*Health at a Glance | OECD iLibrary*, 2019)

The two countries had national mental health strategies before the pandemic. The UK spent 179,5 the Great British Pound Sterling (GBP) in terms of the total mental health expenditure per capita; however, this data was not available for Türkiye (Table 2).

The density of high-trained mental health workforce per population in Türkiye was low: 1,64

for psychiatrists and 2,54 for psychologists. On the other hand, the UK had higher numbers of this workforce than Türkiye, 11 for psychiatrists and 9 for psychologists. However, not aligned with their workforce capacity, the burden of mental health conditions was higher in Türkiye than in the UK; 3,433 and 2,115, respectively (Table 2).

Table 2: Mental health profiles in the two countries

| Country | The burden of mental health disorders (Disability-adjusted life years per 100,000 population) | Deinstitutionalization policy | Psychiatrists per 100,000 population | Psychologists per 100,000 population | Other care settings | Total mental health expenditure per capita |
|--------------------|--|-------------------------------|--------------------------------------|--------------------------------------|---|--|
| Turkey | 3,433 | Unavailable | 1,64 | 2,54 | -Ambulatory service (limited) -Community care | Not reported |
| The United Kingdom | 2,115 (82) | + | 11 (83) | 9 (83) | -Ambulatory service -Community care -Primary care integration | 179,5 GBP (84)* |

EUR- Euro, GBP- the British Pound Sterling,

*Data calculated from the numbers found in the sources

Source: WHO Mental Health Atlas 2017 (*Mental Health Atlas 2017*, 2018)

Restriction measurements and fiscal support schemes were similar in the countries. However, financial allocation differed saliently between two countries. For example, while the UK spent 32% of its GDP to support its population financially, Türkiye allocated only roughly 12% of its GDP for the same purpose. Moreover, 0,3% of Türkiye's GDP (\$2 billion) was spent on the healthcare

sector as a response to the pandemic. This amount was \$145 billion in the UK, equal to 5,3% of its GDP.

Both countries reacted the pandemic with travel restrictions, nation-wide curfews, and transition to teleworking. However, while the UK permitted solo physical activities during confinements; these activities were not excluded from the regulations in Türkiye (Table 3).

Table 3: COVID-related measures in the two countries

| | Turkey | The UK |
|------------------|---|---|
| Lockdown measure | - Nation-wide - Total and partial confinement | - Nation-wide - Total and partial confinement - Permit for solo physical activities |
| Fiscal support | - Direct and indirect support for the enterprises and workers (~12% of GDP) - Budget increase for health care system 2 Billion (0,3% of GDP) - Firing ban and short-time work schemes | - Direct and indirect support for the enterprises and workers (~32% of GDP) - Budget increase for health care system 145 Billion (5,3% of GDP) - Job search help for unemployed group |
| Other | - Travel restrictions - Curfews - Implementation of telecommuting | - Travel restrictions - Curfews - Implementation of telecommuting |

GDP: Gross domestic product

Source: IMF (*Fiscal Policies Database*, 2021; *Policy Responses to COVID19*, 2021)

In 2016, a return on investment study carried out with 36 countries estimated that every \$1 invested in mental health gives a \$4 return (Jorm et al., 2016). Despite this evidence, the budget allocated for mental health systems has always been notoriously low to respond to the needs (World Health Assembly, 2012).

Purpose

This review investigated the mental health-related policies in the two European countries worst hit by the pandemic, two countries that also draw a contrasting pattern of mental health care systems, sociodemographic background, and income level. Following this, the paper recommended possible directions to be pursued by the European policymakers to foster mental health care.

It is undeniable that this study cannot cover all the struggles we face; nonetheless, it will address the major issues. These directions are also controversial topics that belong to the contemporary history of mental healthcare and would likely to steer the future of it.

Methodology

The documents were picked from the health policy sections from the websites of international organizations (European Parliament, OECD, WHO, UN), online data and policy reports of national ministerial bodies, and general web search. English and Turkish sources were included in this review; "policy", "mental health", "pandemic", "COVID-19", "ruh sağlığı", "pandemi", "politika", and their variations were used in the general web search process.

The documents were reviewed and the author identified the main concepts of the responses to discuss after policy review. These concepts were as follows: a) continuing service provision for people with mental health conditions, b) digital mental health care interventions, c) building psychological resilience for citizens. The study was designed as a review; therefore, no statistical framework was conducted.

Review and Discussion

Mental health policies in Türkiye and UK

Türkiye

Türkiye's first case emerged relatively later than those in other European countries; however, case numbers accelerated gradually, and the country still tackles several waves of the pandemic (*Türkiye Confirms First Case of Coronavirus*, 2020).

During the initial year of the pandemic, the Public Health Directorate issued guidelines to limit

the transmission of the virus while maintaining health care safely (*COVID-19 Rehberi [The COVID-19 Guideline]*, 2020). These guidelines included the reorganisation and adaptation of psychiatric facilities to the situation. Consequently, a decrease in inpatient and outpatient psychiatric capacities was observed (Başar, 2020). The Ministry also arranged telemedicine settings, including psychological support lines for those who could not visit health care facilities due to the acute COVID-19 infection (*Dr. E-Pulse: Video Call Platform*, 2020). The Ministry of Health additionally published recommendations for video consultation techniques. However, these were not implemented effectively in public hospitals because of insufficient infrastructure and supply (*COVID-19 Health System Response Monitor: Türkiye*, 2021).

The Turkish Psychiatric Association (TPA) provided hotlines for health care workers who combat the pandemic in the frontline (*Türkiye Psikiyatri Derneği Sağlık Çalışanlarına Destek Hattı Açıldı! | TÜRKİYE PSİKİYATRİ DERNEĞİ*, 2020). Similarly, the Turkish Ministry of Health also set up regional psychosocial support call centres for the general population and health care workforce (*81 İl Psikososyal Destek Hat Bilgileri [Psychosocial Support Line Informations for 81 Cities]*, 2020).

TPA continued to establish comprehensive recommendation papers for health care workers, the mental health workforce, and several vulnerable groups during the pandemic ('COVID-19 Resources', 2021). These papers addressed the critical points on mental health care delivery, telepsychiatry, treatment of mental conditions with COVID-19 infection, and psychological self-care techniques (*COVID-19 ve Ruh Sağlığı | TÜRKİYE PSİKİYATRİ DERNEĞİ*, 2020). Some of these recommendations were translated to Arabic or Kurdish to protect minorities' well-being ('COVID-19 Resource Centre', 2020).

The UK

The UK had to face multiple lockdowns and waves, which had deteriorating effects on the psychological state of its population.

Due to the re-purposing of the National Health Service (NHS) beds to COVID-19 care and the worsening mental health state of the population, psychiatric inpatient clinics suffered from bed shortages and sometimes overwhelming occupancy (James, 2021). The increased demand on mental health care were conveyed to ambulatory and community care settings (*The Impact of COVID-19 on Mental Health Trusts in the NHS*, 2020). On the other hand, mental health funding saw an increase that helped maintain the 24/7 helpline services, the closure of the outdated mental health dormitories, and launching physical screening programs for vulnerable groups

(COVID-19 Health System Response Monitor: United Kingdom, 2021).

Several organisations such as the Royal College of Psychiatrists (RCPsych), and the British Psychological Society prepared mental health and COVID-19 sections that target psychological resilience, the well-being of NHS staff, digital interventions, ethical issues, and the problems and solutions about the management of mental health settings (*Covid-19 Resources - The British Psychological Society*, 2021; *Responding to COVID-19 | Royal College of Psychiatrists*, 2021). Additionally, major voluntary organisations such as Mind, and the Mental Health UK shared their tips on protecting mental health (*Coronavirus - Looking after Your Mental Wellbeing*, 2020; *Covid-19 and Your Mental Health*, 2020). The NHS itself also provided novel care approaches, guidances that depict the pandemic's psychological effects, and possible behavioural prevention methods for vulnerable groups (such as young people, ethnic minorities, people with long COVID) or those with mental health conditions (*Guidance for Parents and Carers on Supporting Children and Young People's Mental Health and Wellbeing during the Coronavirus (COVID-19) Pandemic*, 2021; *Guidance for the Public on the Mental Health and Wellbeing Aspects of Coronavirus (COVID-19)*, 2021).

The pre-existing psychological support lines and groups of voluntary organisations continued to provide service ('Mental Health Helplines and Services during COVID-19', 2021). The NHS, Public Health England (PHE), RCPsych, Mental Health at Work and Frontline19 launched psychological support lines, counselling and therapy services for the NHS staff (*Frontline19*, 2020; *NHS England» Health and Wellbeing Programmes*, 2020; 'Our Frontline', 2020; *Psychiatrists' Support Service (PSS) | Royal College of Psychiatrists*, 2020).

Vis-à-vis mental health care was replaced with video or telephone consultations; however, physical appointments were also provided for those who need them. The NHS and the RCPsych issued guidelines for structuring the fundamentals of telemedicine (*COVID-19 - Working in Secondary and Specialist Mental Health Settings | Royal College of Psychiatrists*, 2020; *Digital - COVID-19 Guidance for Clinicians | Royal College of Psychiatrists*, 2020; *IAPT Guide for Delivering Treatment Remotely during the Coronavirus Pandemic*, 2020).

In March 2021, the government released an action plan that involves a multi-disciplinary recovery approach for mental health care and public well-being (*COVID-19 Mental Health and Wellbeing Recovery Action Plan*, 2021).

Since the early era of the pandemic, the PHE has been monitoring public mental health reactions and well-being with surveillance reports, academic research compilations, and evaluating

the frequency of telesupport service use (*COVID-19 Mental Health and Wellbeing Surveillance*, 2020). In addition, several vocational organs and universities also launched independent surveys or studies to evaluate public mental health and the psychological effects of the COVID-19 infection (*COVID-19 Surveys and Research | Royal College of Psychiatrists*, 2021).

The future of mental health care

There is not a *one-and-only* mental health care approach which could be applied to every country because of such differences in the level of resources, cultural diversities or socioeconomic structure (Knapp et al., 2007). However, as the current situation helped draw attention and funding to mental health, the pandemic could positively transform this field instead of adding insult to injury.

The mental health interventions taken by these countries can be summarised in three concepts: a) continuing service provision for people with mental health conditions, b) digital mental health care interventions, c) building psychological resilience.

Continuing service provision for people with mental health conditions

People with mental health conditions suffered from service disruptions during the pandemic. According to a WHO survey in 2020, more than 90% of the European countries reported that essential mental health services had taken a toll. Globally speaking, this rate was above 90% for the middle or high-income countries ('The Impact of COVID-19 on Mental, Neurological and Substance Use Services: Results of a Rapid Assessment', 2020).

Traditional mental health services are often criticised because of their inhumane and ostracising structure (Cohen & Minas, 2017). For many years, Western European countries have been designing a stepped-care approach that improves multi-disciplinary approach including social care and mental health organisations instead of institutionalisation. The fruits of these reforms can be seen in the example of the UK. Both countries had to reduce their psychiatric inpatient and outpatient bed capacity during the pandemic; however, the community and ambulatory care systems in the UK attempted to manage this deficit with collateral wellbeing and social care organisations. These settings aid various vulnerable groups such as adolescents, people with suicidal thoughts, severe mental health conditions or in isolated settings (*NHS England» Crisis and Acute Mental Health Services*, 2021). Despite the leveraging role of these organisations, the UK still suffered from shortages and insufficient care delivery (Campbell

& editor, 2019). Looking at the current picture, it can be argued that more funding will be needed to face the tertiary psychological effects of the pandemic.

The pandemic could hold a role as an accelerating factor for funding deinstitutionalised care. However, various WHO European countries still tend to spend most of their mental health budgets to traditional institutions (World Health Organization, 2009). These facilities do not possess evidence-based interventions compared to other integrated models of mental health care (Eaton et al., 2011). Community-based intervention models seem to be both effective and self-financing on bringing mental health care (Knapp et al., 2011). The demand for the treatment for mental health is likely to increase in the near future, and this single-layered system alone is no suitable to shoulder the forthcoming turbulence (*COVID-19 Mental Health and Wellbeing Recovery Action Plan*, 2021). An easily accessible, multi-disciplinary and stigma-free care environment could break this vicious cycle and engage more users in prospect. There is a need for novel national mental health strategy plans taking post-COVID concerns into account for WHO European region countries.

Specialised outpatient facilities have also taken a hit during the pandemic. This hit led to digitalisation in mental health care as much as applicable; on the other hand, countries like Türkiye (lower amount of qualified mental health workers, means of providing multi-disciplinary approach, and allocated budget for mental health) have become vulnerable in terms of providing sufficient outpatient care. It should also be noted that primary care integrated referral system and mental health integrated primary care are absent in Türkiye, and specialized facilities are the central pillar for any type of treatment ranging from mild depression to severe schizophrenia (Table 2). Therefore, mid- and long-term policies which aim to prevent congestions in outpatient settings must be considered before facing the long consequences of the pandemic.

Particularly for Türkiye and countries with similar profiles, it is vital to identify risk factors and plan cost-effective intervention and prevention methods to minimize specialized care saturation. It is known that mental health care in primary settings is more reachable by the population (Yeung et al., 2004). Cost-effectiveness and clinical-effectiveness studies also demonstrate these settings are applicable and sustainable (Mens et al., 2018; Rost et al., 2004). Türkiye and alike countries might not have sufficient workforce resource to fully integrate mental healthcare provision to primary care; however, prevention strategies such as increasing awareness between primary healthcare workers might help overcome the overwhelming demand on specialised care for easily treatable psychiatric conditions.

Digital mental health care interventions

The digitalization of medicine had already begun before the pandemic. Nonetheless, its pace skyrocketed with regards to a mandatory need (OECD/European Union, 2020). The elements of psychiatric care such as psychological therapies, consultations or evaluations also quickly adapted to the situation.

The prosperity of digital therapies and smartphone apps carries a double-edged position while it also facilitates populations to reach treatment. Firstly, this expanding marketplace could become a nest for unapproved methods (Terry & Gunter, 2018). For instance, a study from 2019 showed that top-mental health apps tend to use scientific language to evoke population, without the lack of adequate evidence on their effectiveness (Larsen et al., 2019). Moreover, the rate of free iPhone anxiety-targeted apps built with evidence-based approaches was found to be very low (Kertz et al., 2017). Secondly, the care provided by these apps was found to be lacking from emotional support, distracting from real life, and yielding misinterpretations in care seekers about themselves (Estrada Martinez De Alva et al., 2015). Hence, it is crucial to strengthen these interventions with convenient research studies and combine them with face-to-face methods when needed.

Ethical issues regarding data safety, transparency or patient confidentiality are other main concerns reported by healthcare workers (Stoll et al., 2020). These concerns are bilateral in carer taker and care seeker relationship, and government and vocational organs should act collaboratively in order to regulate this area.

Telemedicine helped providing care in the UK; on the other hand, the lack of telemedicine settings in public hospitals in Türkiye pushed citizens to postpone their needs due to fear of transmission and decreased face-to-face appointment options. The gap between these two countries indicate that digital infrastructure of health care should be promoted and supported across the WHO European region.

Building psychological resilience

The two countries attempted to mitigate the immediate psychological shock of the pandemic in varying degrees by enhancing pre-existing infrastructures or implementing novel strategies. Albeit, medium- and long-term effects of the pandemic will continue to challenge mental health wellbeing and related areas. Public or individual well-being are bound to many social determinants, and stakeholders need to follow a multi-systemic, multi-disciplinary pathway in order to protect both individual and public wellbeing (World Health Organization and Calouste Gulbenkian Foundation, 2014). Mental health distress could

metamorphise to mental health conditions, if not acted thoroughly.

Turkiye and the UK implemented several measures in order to protect economic stability. However, many studies in contemporary history showed that economic shocks are likely to trigger their detrimental psychological effects during tertiary phase. These shocks impact mental health in the long term due to economic instability, job loss, uncertainty and other factors (McDaid, 2017; Paul & Moser, 2009). It should be therefore kept in mind that even when the pandemic settles, time-delayed economic effects will cause challenging consequences in public mental health. This becomes extremely important when the current economic instability and increased cost of living within the European Union are considered (*EA and EU Economic Snapshot - OECD*, 2022). European policymakers should take into account that the monitorisation of suicide rates, levels of depression, anxiety, or substance use is particularly essential in vulnerable economic settings.

A study from the Netherlands shows that people without mental health conditions had a greater negative impact on their mental well-being than those with pre-existing mental health conditions during the first year of the pandemic (Pan et al., 2021). The most affected groups consisted of ethnic or racial minorities, women, people with low-income, students, young or elderly people (OECD, 2021a, 2021b; Saladino et al., 2020; Tai et al., 2021). This deteriorating effect was also present in the English population demonstrated by the surveillance reports of the Public Health England (Public Health England, 2020b, 2020a). Such reports and studies indicate that governments should strengthen their hands to protect general and vulnerable populations. Key organisations such as independent bodies, local governments or initiatives have already been promoting self-help techniques, peer support groups, psychological first aid teams or hotlines in Western countries. In other WHO European countries, where these organisations are absent or less active, the deficit can be filled by using key community members as pillars. Micro- or meso-level actors could stem from backgrounds such as religious leaders, union members, managers, school teachers or local authorities, as the studies show that these actors are extremely beneficial in community-based mental healthcare (*The Community Mental Health Framework for Adults and Older Adults*, 2019). According to a study, religious/spiritual advisors were seen by 35% of treatment-seeking Asian Americans with a lifetime mental disorder (John & Williams, 2013). Another study from the United States also indicated that at least 57,3% of respondents with mental health disorders first contacted professionals not working in mental health area (Wang et al., 2003). Training the actors from these settings could help monitor,

identify, or control mental distress levels effectively whereas preventing unnecessary specialised or primary care consultations.

A Eurofund report from 2017 showed that remote workers tend to spend more time on work than those in offices, possibly due to uncertain working hours (Eurofound and the International Labour Office, 2017). This impact could become a risk for working population as the pandemic catalysed the shift to teleworking rapidly (European Commission, 2020). According to the OECD data, the high prevalence of mental health conditions among the working-age population is linked to the high economic cost of mental health conditions (OECD, 2020). Countries with middle- or high-income, namely most Western countries, should regularly monitor the mental consequences of teleworking in terms of increased loneliness, isolation and burn-out.

The need to address migration-related mental health issues is increasing as the world has been seeing the highest numbers of human migration in the latest years (Jennings, 2011). Unsurprisingly, the pandemic and migration carry the same devastating effects: loneliness, feeling of isolation, discrimination (for instance, racist accusations about the origin of COVID-19) (Banerjee & Rai, 2020; Fernández et al., 2017). Therefore, the countries with a higher density of refugee or immigrated population, notably Western European countries or countries that have land frontiers with war territories, should particularly pay attention to these adverse psychological effects which could stem from the combination of immigration and the pandemic (Foad et al., 2015).

Conclusions

The concepts mentioned above and recommendations reflect the future directions for mental health policies. Uniquely, they entail a cross-sectoral structure, namely the "*mental health in all policies*" approach, which includes areas such as technology, healthcare, labour, and economy (*Mental Health In All Policies » Mental Health and Wellbeing*, 2013). A public health strategy ignoring these areas and only focusing on treating mental health conditions will not be sustainable in delivering healthcare during the post-pandemic era. As the pandemic and its consequences reshape our society, it is essential to address these issues to protect and foster a multi-level mental healthcare system.

Conflict of interest

The author declares that she has no conflicts of interest.

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Prevalence of depression and anxiety among university students during COVID-19 in Bangladesh: A cross sectional study

Minhazur Rahman Rezvi, Md Rakib Hossain, Fariha Haque

University of Dhaka, Bangladesh

Abstract

Introduction: The COVID-19 outbreak has become a challenging crisis for public health. During the COVID-19 pandemic, the indefinite closure of educational institutions in Bangladesh has a severe impact on the mental health of students.

Purpose: The purpose of this study is to investigate factors that might have considerable influence on the mental health of students during quarantine in Bangladesh though they did not explore in previous studies on mental health status during the pandemic.

Methodology: A standardized questionnaire was generated using PH9 and GAD7 to measure depression and anxiety levels. A total of 203 responses were collected from university students of Bangladesh through social media.

Results: Descriptive statistics found that 37% of the students experienced moderate to severe anxiety while 54% faced moderate to severe depression. Ordinal Logistic Regression analysis found that anxiety is significantly related to gender, students' current affiliation status in university (e.g., sophomore, masters), and time spent on watching TV while depression was related to family member's contact with Covid-19, performing multiple activities as hobbies, and spending time in reading and writing.

Conclusions: This study adds valuable findings in the existing literature, and it will help Students, university authorities, and government can take productive steps to tackle mental health issues.

Keywords

COVID-19, mental health, university students, quarantine activities, Bangladesh

Address for correspondence:

Minhazur Rahman Rezvi, MSS, Department of Development Studies, University of Dhaka
Email: minhazurrahmanrezvi@gmail.com

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Publisher: Sciendo (De Gruyter)

DOI: <https://doi.org/10.56508/mhgci.v5i2.140>

Submitted for publication: 12 April 2022

Revised: 01 August 2022

Accepted for publication: 07 August 2022

Introduction

COVID-19 outbreak has become one of the most devastating and challenging crisis for public health in the contemporary world (Islam et al., 2020). This pandemic has rapidly compounded its public health burden (Torales et al., 2020) and has been recognized as a greater risk for deteriorating mental health conditions of individuals (WHO 2020a). Along with public health, the COVID-19 pandemic has a significant impact on the social and economic aspects (Bhuiyan et al., 2020; Nicola et al., 2020). In December 2019, the coronavirus disease (COVID- 19) pandemic was first identified in a seafood market in Wuhan City, Hubei in China, started to spread quickly throughout the world (Wang et al., 2020). In January 2020, the WHO declared the outbreak of COVID-19 infection as a public health emergency of worldwide concern (WHO, 2020a). Subsequently, on March 11, 2020, WHO declared COVID-19 as a pandemic (WHO, 2020b). The incidence and mortality due to COVID-19 have increased dramatically around the world. Until now, over 56,660,391 people have infected in the COVID-19 in the world, causing more than 1,356,705 deaths (As of 19 November 2020; Worldometers, 2020).

Lockdown is considered as effective measure in slowing the spread of COVID-19 around the globe (Barkur et al., 2020; Flaxman et al., 2020). Like other countries, Bangladesh reported the first COVID-19 case on March 8, 2020 (Daily star, 2020a), and although initially, the virus spread slowly, a rapid case increment started in April (Satu et al., 2020). After first COVID-19 detection, Bangladesh also put the lockdown strategy into effect on March 26, 2020, to ensure 'social distance' through 'home quarantine' to curb the 'spread' of the virus among its population (Jahid, 2020; Bhuiyan et al., 2020; Bodrud-Doza et al., 2020). Although the COVID-19 virus has affected all districts of the country and around 4 41,159 confirmed cases, 6,305 people died in Bangladesh (on 19 November 2020; Worldometers, 2020). However, all education institutions were shutdown initially from March 18, 2020, to March 31, 2020, across the country and later extended to November 14, 2020, in phases (Dhaka tribune, 2020a; Dhaka tribune, 2020b).

Consequently, it has created uncertainty about academic and professional careers among the students which intensified mental health problems among university students (Hossain et al., 2019; Shamsuddin et al., 2013). Furthermore, COVID-19, tertiary education institutions have shifted to an emergency online learning format, which would be expected to exacerbate more academic stressors for students (Grubic et al. 2020). Like other countries, most of the major public universities in Bangladesh have started to take online classes, including Dhaka University which

started online classes in July (Daily star, 2020b). Due to students with fewer facilities (i.e., high internet service costs, poor internet connection in the rural area, not having access to a digital device, etc.), only half or even more students could not access online class, might be potential mental distress mediating factors (Islam et al., 2020; Daily star, 2020b). A study showed that 35.5% of participants (medical students) were in a state of depression, and 22.1% were in a state of anxiety (Liu et al., 2020). Cao et al. (2020) confirmed that 24.9% of Chinese college students experienced the negative impact of the Covid-19 crisis on mental health due to academic delays and the economic effects of the pandemic. Moreover, financial instability, lack of personal space at home, fear of infecting other family members, and insecure potential jobs may lead to a wide range of psychiatric challenges for university students (Cao et al., 2020; Wang et al., 2020).

Purpose

This article aims to investigate the impact of COVID-19 on the mental health status of university students of Bangladesh. It also attempts to explore associate factors to mental health (i.e., depression and anxiety) and relieving factors (activities of students) of depression and anxiety since previous studies done on this area have not explored these factors. To evaluate the mental health status of students, this study use Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder 7 (GAD-7) screening tools.

Methodology

An online survey was conducted among students to gather the necessary data. The survey was conducted from 19th September to 18th October. During this pandemic, all the educational institutions were closed, and students were not able to go out because of quarantine. Depression was measured by the Patient Health Questionnaire (PHQ-9). PHQ-9 is useful for screening depression of the responses that are used to predict depression of an individual and what state he/she is in during the survey. The scores in PHQ-9 range from '0 = not at all' to '3 = nearly every day' (Kroenke et al., 2001). Levels of depression were characterized as 'non-minimal = 0-4', 'mild = 5-9', 'moderate = 10-14,' 'moderately severe = 15-19,' 'severe = > 20.' Anxiety was assessed by Generalized Anxiety Disorder (GAD-7). The questions in the questionnaire scale range from '0 = not at all sure' to '3 = nearly every day' (Spitzer et al., 2006). The levels of anxiety for the study were characterized as 'mild = 5-9,' 'moderate = 10-14, and 'severe = > 15'.

PHQ-9 and GAD7 were proved to be useful reliable tools in various studies for detecting depression (Martin et al., 2006; Hossain et al., 2019). Numerous studies used these methods to measure anxiety and depression in various countries (Milić et al., 2019; Liu et al., 2020). Considering its reliability and widespread usage, this study will use these two methods to measure the mental health of university students.

The independent variables taken from the literature (i.e., gender, age, living area, family members' contact with Covis-19, watching TV, talking with friends and family, spending time in reading and writing, and lastly, doing religious activities) consist mostly of factor variables which range from 0 to 1. If an individual falls into a specific category s/he was specified as 0 if not then 1 (e.g., if male and 0 if female). Some continuous variables (i.e., number of activities performed, family income threshold, and affiliation with the university) are also included in the analysis, and they can take any number (e.g., 1 or 7).

Descriptive statistical analysis was conducted to describe the characteristics of the participants. Ordered Logistic Regression analysis was done to predict the association of psychological measures (PHQ and GAD7) to potential factors. The PHQ categorizes depression, and as non-minimal, mild, moderate, moderately severe, and severe, and GAD7 categorizes anxiety as mild, minimal, moderate, and severe. This study used OLR since there is an order in place, and these categories can be considered as the Likert scale, and a p-value of ≤ 0.05 was considered to be significant. Some of the previous studies done using the Likert scale mostly use OLR to analyze their data

(Eboli and Mazzulla, 2009), and it stated that OLR can be used in this case (Hedeker, 2014). After the regression analysis, assumptions related to OLR were checked using Omodel and Brant test which are usually used to test proportional odds assumption and parallel regressions assumption (Williams and Quiroz, 2020). The tests conclude that the overall model does not violate any assumptions, and the results obtained from the analysis can be considered reliable.

Results

Table 1 describes the variables, and Table 2 shows the prevalence of anxiety and depression among students. Out of the Total 203 responses, mild to severe depression was found among 161 (79%) students. Surprisingly almost everyone face mild to severe anxiety symptoms. 59 % (119) of participants were male, and 97% (197) were within 18 to 25 years. 66% (134) of students live in urban areas, and the rest are in rural areas. Mostly (28.7%) students came from a family having 10000 TK to 30000 TK monthly income. 19.2 % (39) students were from families having below 10000 TK monthly income while 24.8 % (51) students are from affluent families. Family members of 86.7 % (170) students were not infected by COVID-19. Almost 5 % (11) students were idle during this pandemic. Mostly (39%) were busy with doing single activities. 43.9% (87) students spent their time watching TV, 46% (93) students read and wrote, 49% (100) students spent time with their family and friends, 42% (86) students were busy with religious activities.

Table 1: Frequency table for different selected variables.

| Variables | Percentage | Frequency (N= 203) |
|--|------------|--------------------|
| Gender | | |
| Female | 41% | 84 |
| Male | 59% | 119 |
| Age | | |
| 18-25 | 97% | 197 |
| Above 25 | 3% | 6 |
| Current student affiliation with the University | | |
| 1st and 2nd year | 33% | 67 |
| 3rd year and above | 67% | 137 |
| Living area | | |
| Urban | 66% | 134 |
| Rural | 34% | 69 |
| Family income | | |

| | | |
|---|------|-----|
| Below Tk. 10,000 | 19% | 39 |
| Tk. 10,000-30,000 | 29% | 58 |
| Tk. 30,000-50,000 | 27% | 55 |
| Above Tk. 50,000 | 25% | 51 |
| Family been infected by Covid-19 | | |
| No | 86.7 | 170 |
| Yes | 13.3 | 33 |
| Number of activities performed | | |
| 0 to 3 | 75% | 153 |
| 4 to 7 | 25% | 50 |
| Activities performed | | |
| Did not watch TV | 56.1 | 116 |
| Watched TV | 43.9 | 87 |
| Reading and writing | | |
| Done reading and writing | 46% | 93 |
| Did not read or write | 54% | 110 |
| Talk with friend and families | | |
| Did not talk | 51% | 103 |
| Talked | 49% | 100 |
| Doing religious activities | | |
| Did not (0) | 58% | 117 |
| Did (1) | 42% | 86 |

Table 3 illustrates the descriptive statistics of variables and the prevalence of anxiety and depression among them. The analysis showed that female suffered more depression (i.e., moderate 24% and moderately severe 17%) and anxiety (17% moderate and 30% severe) compared to their male counterpart (20% moderate and 1% moderately severe depression while 16% moderate and 14% severe anxiety). Among fresh graduates, only 3% of students were found to have moderately severe to severe depression while 23% and 13% of masters' students were in moderately severe to severe depression. Anxiety was also found to be severe among students from senior and master's years (23%) compared to their younger counterparts (13%). Prevalence of moderately severe to severe depression was found to be high (14% and 12%) among students from urban areas compared to students living in the rural area (7% and 1%). However, students from the urban area suffered less anxiety (16% moderate anxiety vs. 17%

among rural students) though they also faced 26% severe anxiety compared to 12% among rural students.

Students with family income less than 10000 TK have faced 5% moderately severe and severe depression while students with family income more than 50000 TK suffered 20% and 14% moderately severe and severe depression. Similar to students living in rural areas, students from low-income families suffer from 15% moderate anxiety compared to 12% among students from high-income family though they face severe anxiety more than students from low-income families (29% vs. 8%). The result also indicated that students whose family member has been in contact with Covid-19 have higher depression (18% severe) and anxiety (30% severe) compared to students whose family member has not been intact with Covid-19 who suffered from 6% and 18% severe anxiety and also severe depression.

Table 2: Prevalence of anxiety and depression

| Anxiety | Frequency | Percentage | Depression | Frequency | Percentage |
|------------------|-----------|------------|-------------------|-----------|------------|
| Mild anxiety | 64 | 32% | Mild | 77 | 38% |
| Minimal anxiety | 64 | 32% | Moderate | 43 | 21% |
| Moderate anxiety | 33 | 16% | Moderately severe | 24 | 12% |
| Severe anxiety | 42 | 21% | None-minimal | 42 | 21% |
| | | | Severe | 17 | 8% |

Students with family income less than 10000 TK have faced 5% moderately severe and severe depression while students with family income more than 50000 TK suffered 20% and 14% moderately severe and severe depression. Similar to students living in rural areas, students from low-income families suffer from 15% moderate anxiety compared to 12% among students from high-income family though they face severe anxiety

more than students from low-income families (29% vs. 8%). The result also indicated that students whose family member has been in contact with Covid-19 have higher depression (18% severe) and anxiety (30% severe) compared to students whose family member has not been intact with Covid-19 who suffered from 6% and 18% severe anxiety and also severe depression.

Table 3: Descriptive statistics of depression and anxiety among students

| Depression | | | | | | | | | | | |
|---|----------------|--------------|------------|------|------------|----------|------------|-------------------|------------|--------|------------|
| Variables | | none-minimal | Percentage | Mild | Percentage | Moderate | percentage | moderately severe | percentage | severe | Percentage |
| Gender | Female | 18 | 21% | 53 | 63% | 20 | 24% | 14 | 17% | 8 | 1% |
| | Male | 24 | 20% | 24 | 20% | 23 | 20% | 10 | 1% | 9 | 1% |
| Age | 18-25 | 40 | 20% | 76 | 39% | 42 | 21% | 24 | 12% | 15 | 8% |
| | Above 25 | 2 | 33% | 1 | 17% | 1 | 17% | 0 | | 2 | 33% |
| Current student affiliation with the University | 1-st year | 9 | 30% | 9 | 30% | 10 | 33% | 1 | 3% | 1 | 3% |
| | 2-nd year | 4 | 19% | 22 | 60% | 7 | 20% | 2 | 5% | 2 | 5% |
| | 3-rd year | 7 | 16% | 20 | 44% | 10 | 22% | 6 | 13% | 2 | 4% |
| | 4-th year | 8 | 20% | 13 | 33% | 6 | 15% | 7 | 18% | 6 | 15% |
| | fresh graduate | 8 | 40% | 4 | 20% | 3 | 15% | 4 | 20% | 1 | 5% |
| | Masters | 6 | 19% | 9 | 29% | 7 | 23% | 4 | 13% | 5 | 16% |
| Living area | Urban | 30 | 22% | 42 | 31% | 27 | 20% | 19 | 14% | 16 | 12% |
| | Rural | 12 | 17% | 35 | 51% | 16 | 23% | 5 | 7% | 1 | 1% |

| | | | | | | | | | | | |
|----------------------------------|---------------|----|-----|----|------|----|-----|----|-----|----|-----|
| | | | | | | | | | | | |
| Family income? | Below Tk. 10k | 8 | 21% | 17 | 44% | 9 | 23% | 2 | 5% | 2 | 5% |
| | 10-30k | 16 | 28% | 20 | 34% | 14 | 24% | 5 | 9% | 3 | 5% |
| | 30-50k | 8 | 15% | 21 | 38% | 12 | 22% | 7 | 13% | 7 | 13% |
| | Above 50k | 9 | 18% | 18 | 35% | 8 | 16% | 10 | 20% | 7 | 14% |
| Family been infected by Covid-19 | No | 39 | 23% | 67 | 39% | 36 | 21% | 17 | 10% | 11 | 6% |
| | Yes | 3 | 9% | 10 | 30% | 7 | 21% | 7 | 21% | 6 | 18% |
| Number of activities performed | 0 | 1 | 24% | 3 | 27% | 2 | 18% | | | 2 | 18% |
| | 1 | 14 | 18% | 32 | 40% | 19 | 40% | 3 | 4% | 4 | 5% |
| | 2 | 8 | 29% | 8 | 29% | 4 | 14% | 11 | 39% | 4 | 14% |
| | 3 | 8 | 24% | 11 | 32% | 10 | 29% | 4 | 12% | 2 | 6% |
| | 4 | 1 | 5% | 12 | 57% | 4 | 19% | 3 | 14% | 2 | 10% |
| | 5 | 6 | 30% | 8 | 40% | 3 | 15% | 2 | 10% | 2 | 10% |
| | 6 | 4 | 50% | 2 | 25% | 1 | 13% | 1 | 13% | 1 | 13% |
| | 7 | | | 1 | 100% | | | | | | |
| Activities performed | No | 25 | 22% | 40 | 34% | 27 | 23% | 13 | 11% | 8 | 7% |
| | Yes | 17 | 20% | 37 | 43% | 16 | 18% | 11 | 13% | 9 | 10% |
| Done Reading and writing | Yes | 17 | 18% | 35 | 38% | 23 | 25% | 8 | 9% | 11 | 12% |
| | No | 24 | 22% | 42 | 38% | 19 | 17% | 16 | 15% | 8 | 7% |
| Talk with friend and families | No | 19 | 18% | 36 | 35% | 23 | 22% | 15 | 15% | 10 | 10% |
| | Yes | 22 | 22% | 41 | 41% | 20 | 20% | 9 | 9% | 8 | 8% |
| Done relig. activities | No | 21 | 18% | 42 | 36% | 26 | 22% | 18 | 15% | 10 | 9% |
| | Yes | 21 | 24% | 35 | 41% | 17 | 20% | 6 | 7% | 7 | 8% |
| Anxiety | | | | | | | | | | | |

| Variables. | | Minimal | Percentage | mild | percentage | mode rate | percentage | severe | percentage |
|---|-----------------|---------|------------|------|------------|-----------|------------|--------|------------|
| Gender | Female | 20 | 24% | 26 | 31% | 14 | 17% | 25 | 30% |
| | Male | 44 | 37% | 38 | 32% | 19 | 16% | 17 | 14% |
| Age | 18-25 | 61 | 31% | 63 | 32% | 33 | 18% | 40 | 20% |
| | Above 25 | 3 | 50% | 1 | 17% | | | 2 | 33% |
| Current student affiliation with the University | 1st year | 17 | 57% | 6 | 20% | 4 | 13% | 4 | 13% |
| | 2 nd | 13 | 35% | 10 | 27% | 10 | 27% | 3 | 8% |
| | 3 rd | 9 | 20% | 19 | 42% | 8 | 18% | 9 | 20% |
| | 4 th | 10 | 25% | 9 | 23% | 7 | 18% | 14 | 35% |
| | fresh graduate | 8 | 40% | 6 | 30% | 1 | 5% | 5 | 25% |
| | Masters | 7 | 23% | 14 | 45% | 3 | 10% | 7 | 23% |
| Living area | Urban | 42 | 31% | 37 | 28% | 21 | 16% | 35 | 26% |
| | Rural | 22 | 32% | 26 | 38% | 12 | 17% | 8 | 12% |
| Family income? (Monthly) | Below Tk. 10k | 14 | 36% | 16 | 41% | 6 | 15% | 3 | 8% |
| | 10-30k | 21 | 36% | 15 | 26% | 10 | 17% | 12 | 21% |
| | 30-50k | 18 | 33% | 13 | 24% | 11 | 20% | 12 | 22% |
| | Above 50k | 11 | 22% | 20 | 39% | 6 | 12% | 15 | 29% |
| Family been infect.Covid-19 | No | 56 | 33% | 55 | 32% | 28 | 16% | 31 | 18% |
| | Yes | 8 | 24% | 9 | 27% | 6 | 18% | 10 | 30% |
| Number of activities performed | 0 | 3 | 27% | 3 | 27% | 2 | 18% | 3 | 27% |
| | 1 | 23 | 29% | 27 | 34% | 18 | 23% | 14 | 18% |
| | 2 | 7 | 25% | 9 | 32% | 3 | 11% | 9 | 32% |
| | 3 | 14 | 6% | 8 | 24% | 5 | 15% | 7 | 21% |
| | 4 | 7 | 33% | 7 | 33% | 3 | 14% | 3 | 14% |
| | 5 | 7 | 35% | 7 | 35% | 2 | 10% | 4 | 20% |

| | | | | | | | | | |
|-------------------------------|-----|----|-----|----|-----|----|-----|----|-----|
| | 6 | 3 | 38% | 2 | 25% | 0 | | 2 | 25% |
| | 7 | 0 | | 1 | | 0 | | 0 | |
| Watched TV | No | 39 | 34% | 37 | 32% | 18 | 16% | 19 | 16% |
| | Yes | 25 | 29% | 27 | 31% | 15 | 17% | 23 | 26% |
| Done Reading and writing | Yes | 30 | 32% | 32 | 34% | 10 | 11% | 22 | 24% |
| | No | 34 | 31% | 32 | 29% | 23 | 21% | 20 | 18% |
| Talk with friend and families | No | 32 | 31% | 38 | 37% | 22 | 21% | 25 | 24% |
| | Yes | 32 | 32% | 26 | 26% | 11 | 11% | 17 | 17% |
| Done religious activities | No | 34 | 29% | 38 | 32% | 21 | 18% | 23 | 20% |
| | Yes | 30 | 35% | 26 | 30% | 12 | 14% | 17 | 20% |

Students who performed multiple activities also tended to have less anxiety and depression. Students who performed at least 6 activities reported to have 13% moderate and severe depression while students with 1 activity reported 18% depression. Anxiety was also high among

students who did less activities. The descriptive statistics also found that students who done religious prayers, talked with friends and family and did not watch TV reported less anxiety and depression compared to students who done the contrary.

Table 4: Result of regression analysis

| | Anxiety | | | Depression | | |
|-------------------------------|------------|------------|---------|------------|------------|---------|
| Variables | B | Odds ratio | P Value | B | Odds ratio | P Value |
| Gender | -0.7767204 | 0.459912 | 0.007** | -0.4598762 | 0.629848 | 0.102 |
| Students Affiliation | 0.1939977 | 1.214093 | 0.025* | 0.1066117 | 1.10407 | 0.214 |
| Family income | -0.1727173 | 0.841376 | 0.188 | -0.0452464 | 0.952321 | 0.728 |
| Family contact with Covid | 0.1678431 | 1.182751 | 0.655 | 0.974859 | 2.639802 | 0.008** |
| Watching TV | 0.8628934 | 2.370008 | 0.012* | 0.5127267 | 1.608821 | 0.126 |
| Talk with friend and families | -0.1641943 | 0.848577 | 0.616 | -0.0594845 | 0.933966 | 0.854 |

| | | | | | | |
|----------------------|------------|----------|-------|------------|----------|--------|
| Number of activities | -0.3022578 | 0.739148 | 0.084 | -0.3618266 | 0.71459 | 0.035* |
| Reading and writing | -0.2196312 | 0.802815 | 0.54 | -0.7212372 | 0.495631 | 0.043* |
| Age | -0.9571335 | 0.383992 | 0.276 | -0.3150179 | 0.729776 | 0.734 |
| Religious activities | 0.3290569 | 1.389657 | 0.354 | 0.0769458 | 1.079984 | 0.825 |

Note: *P-value<0.05, **P-value <0.01, B= coefficient

In Table 4, the regression analysis revealed that three of the variables were significant in determining anxiety. Gender was found to be significant in determining anxiety which means that male inclined to have less anxiety than females ($B = -0.78$, $p < 0.01$). Student's current affiliation with the university and watching TV were also significant in determining anxiety which we also found in descriptive analysis. Students who were in their graduation year or post-graduation year inclined to have higher anxiety than students in the first or second year ($B = 0.19$, $p < 0.5$). Among the activities, watching TV was found to be significant in determining anxiety so, students who watch TV inclined to have higher anxiety ($B = 0.86$, $p < 0.05$) than students who did not watch TV during the quarantine.

Variables that influenced anxiety significantly did not seem to have a significant relationship with depression. The result showed that depression was significantly related to family member's contact with Covid-19, reading and writing, and several activities. Students whose family had been in contact with Covid-19 seemed to have higher depression ($B = 0.97$, $p < 0.01$) compared to students whose family members did not come into contact with Covid-19. Among the activities, students who did reading and writing tended to have more depression ($B = -0.71$, $p < 0.05$) than students who did not. Also, the number of activities or hobbies were significantly related to depression ($B = -36$, $p < 0.05$). Students who have done more activities (e.g., 5, 6) tend to have less depression than students who did few activities

Discussion

The findings of this study agree with some previous studies though they differ with the results in some respects. The study found that a high rate of depression and anxiety exist among university student and some previous studies also found similar results. For example, Khan et al. (2020) found that 33.3% of anxiety and 46.92% of mild to extremely severe depression were affected among students of Bangladesh. Moreover, several studies were conducted in other countries like Wang et al. (2020) also found a high level of depression among people at the initial level of

quarantine. Various factors are responsible for deteriorating the quality of mental health among students during the pandemic. The Covid-19 has severed personal communication, and increased student's academic uncertainty is considered a substantial factor of depression and anxiety (Mushtaq et al., 2014; Roy et al., 2020).

This study found that a higher level of anxiety during quarantine was related to student's gender and their affiliations status (i.e., sophomore, masters) in university. Among quarantine activities, watching TV was found to be significantly related to anxiety. Depression had a significant relationship with the family member's infection with Covid-19. Also, several factors along with reading and writing were related to depression. Furthermore, some other factors (i.e., religious prayers, talking with friends and family, family income level) influenced the mental health of students in descriptive statistics, but they were not found significant in inferential statistics. A detailed discussion can make sense of these variables.

As in previous studies, the study found that gender status was significantly related to anxiety during the COVID-19. Women tended to have a higher level of anxiety compared to men for cognitive and physical reasons (Bahrami and Yousefi, 2011; Hosseini and Khazali, 2013). Various studies were conducted to find the causal relationships behind the women's higher level of anxiety. Women incline to ruminate over a particular issue more than men, therefore, become victims to higher levels of anxiety (Johnson and Whisman, 2013). The findings stated that women were affected by more anxiety than men during the Covid-19 crisis. However, some studies reported that they did not found any significant difference between men and women in mental health status (Islam et al., 2020). On the contrary, a study showed that there was a higher level of anxiety among the male population than women (Wang et al., 2020).

Some of the previous studies done on mental health among students during quarantine did not find or explore the mental health status among students of different years (Islam et al., 2020; Khan et al., 2020). This study included students' current affiliation status at university and found

that students' years of studying at the university have a significant relationship with anxiety. Students from senior, fresh graduate and post-graduate levels are more like to face anxiety than freshmen or sophomore students. On the contrary, previous studies (i.e., before the quarantine) found that freshman and sophomores were more likely to face anxiety (Wyatt and Oswalt, 2013; Eleftheriades, et al., 2020). Eleftheriades et al. (2020) stated that it might not be the case that post-graduate and senior have minimal anxiety, but a selection bias might be in work here. Even students with higher anxiety do not continue their studies; so, only students with stable mental health can continue their studies at senior and post-graduate levels. However, a study found similar findings as this study that a higher level of anxiety was related to other students than freshmen during this quarantine (Kecojevic et al., 2020). So, students studying in university in the post-graduate or senior year have suffered from anxiety where selection bias does not occur. Halting academic progress and uncertainty of employment opportunities might be a reason behind this problem.

During quarantine, a high proportion of students were watching movies and TV shows; this study found that it was significantly related to anxiety. Recent studies on mental health during COVID-19 have not considered this factor (Islam et al., 2020; Khan et al., 2020; Wang et al., 2020) though previous studies found that there was a positive relationship between binge-watching TV and level of anxiety and depression (Wheeler, 2015; Madhav et al., 2017). Due to lockdown, people could not go outside, and watching TV was found as the most common activity among respondents; they spent more time on TV when having no home activities to do. Other activities like gardening or petting animals were found as regular activities among participants during quarantine to avoid mental health stress.

Reading and writing thought to improve mental health (Lewis, 2009; Baiki and Wilhelm, 2005), but this study found that students with a higher level of depression performed more reading and writing than students with a lower level of depression. The reasons were excessive reading and writing, and academic workloads during lockdown had different influences on students' mental health status. Students were facing a higher level of depression because of online classes and academic workload. Similarly, previous studies stated that students' mental health deteriorates when academic workload increase (Aidan, 2018; Cheung et al., 2020). Universities of Bangladesh were taking online classes even though a large number of students did not have enough resources to access online classes. Academic workloads with technical inaccessibility of students increased the level of anxiety and depression among them.

The study found that Students' (i.e., participants) performed several activities during lockdown were highly related to their depression level. The performed activities (e.g., gardening, petting animals, and talking with friends) of participants were influenced to improve their mental health. Takeda et al. (2015) also stated that performing multiple activities can keep desirable physical and mental health status (Pressman et al., 2009). Even though single activity such as prayers or talking with friends and family were not significantly related to depression, therefore, it indicated that doing multiple activities together improved an individual's mental health status.

It also found that Covid-19 infection among family members was significantly related to depression. Individuals whose family members were infected by the Covid-19 had a higher level of depression. Several studies reported that fear of infection to Covid-19 might result in deteriorating mental health (Hossain et al., 2020; Ahorsu et al., 2020; Wang et al., 2020) though they did not assess the impact of confirmed cases on mental health. Previous studies (i.e., pre-COVID-19) showed similar findings that any family member's hospitalization increased depression and anxiety (Belayachi et al., 2013; Fonseca et al., 2019).

In terms of depression and anxiety, descriptive statistics found that most of the people who did not perform religious activities, did not spend much time talking with friends or family, and had a family income more than 30,000 TK related to have a higher level of anxiety and depression; but those variables were not significant in inferential statistics. These factors might not significantly relate to mental health, or the small sample size is making those variables insignificant. More research including those factors with a large sample size might reveal their proper relationship with mental health.

Strengths and Limitations of the study

The study complements some previous studies by including some detailed variables that have significance about mental health. Findings of this study filled in the gap through contributing a detailed analysis of mental health during Covid-19.

However, the small sample size is a limitation that could not be overcome because of lack of time and findings. Large sample size is desired but it is not possible to acquire a large sample size. Another limitation is that the responses are not balanced (e.g., female 41% and male 59%). Despite these setbacks, this study will add valuable information to the existing.

Conclusions

The COVID-19's lockdown, self-isolation, and social distancing have increased the psychiatric problems among the Bangladeshi people. Specifically, the COVID-19 pandemic has also created mental stress among college and university students due to academic delays, fear of the virus, financial instability, and uncertainty of jobs (Cao et al., 2020; Wang et al., 2020; Romash, 2020). This study has investigated the impact of COVID-19 on the mental health status of university students of Bangladesh. Like previous studies, the study found that a high rate of depression and anxiety exist among university student, and various factors were responsible for psychiatric stress among students during the quarantine. The study also observed that a higher level of anxiety was significantly related to student's gender and students' current affiliation status (i.e., studying year) in university during the crisis. Watching TV was also found to be significantly related to anxiety. Depression had a significant relationship with the family member's infection with Covid-19. Also, the number of activities during quarantine (e.g., petting animals, cooking, gardening) along with reading and writing was found to be significantly related to depression. Some factors (i.e., religious prayers, talking with friends and family, family income level) were found to be influencing mental health in descriptive statistics, though they were not statistically significant. Similar to other studies, it was found that performing multiple activities (e.g., gardening, petting animals, talking with friends, etc.) could work as vital factors to improve the mental health of students. Also, Bangladesh's government, along with the universities should consider the mental health issue as a challenging problem; they should work together to minimize the negative impacts on the mental health of university students.

Conflict of interest

The authors declare that they have no conflicts of interest.

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NOTE

Mental health disorders in patients with end-stage renal failure

Maria Karastathi-Asimakopoulou¹, Anna Loudovikou²

¹ University of Crete, Faculty of Medicine, Heraklion, Greece

² Aristotle University of Thessaloniki, School of Philosophy, Thessaloniki, Greece

Abstract

Renal failure is commonly accompanied by psychological distress compounding to mental health conditions such as anxiety and depression. Common risk factors towards the development of mental health disorders in people with renal failure include the need to attend regular hemodialysis session and the burden of related complications. A growing body of evidence has elucidated the biochemical and immunological underpinnings of mental health disorders in the context of renal failure. This knowledge calls for strengthening the existing mental health support frameworks and conducting research with the reported molecular pathways as potential therapeutic targets.

Keywords

kidney failure, mental health, anxiety, depression

Address for correspondence:

Maria Karastathi-Asimakopoulou, University of Crete, Faculty of Medicine, Andrea Kalokairinou 13, Giofyrakia, 71500, Heraklion, Greece, mariakarasta8i@gmail.com

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Publisher: Sciendo (De Gruyter)

DOI: <https://doi.org/10.56508/mhgj.v5i2.146>

Submitted for publication: 12 July 2022

Revised: 20 August 2022

Accepted for publication: 28 August 2022

Introduction

Approximately 10-15% of the global population suffers from chronic kidney disease. Its principal causes include diabetes mellitus and hypertension, two highly prevalent non – communicable diseases affecting billions of people worldwide. End-stage kidney disease, also known as kidney failure, is the fifth and final stage in the progression of chronic kidney disease. Chronic renal failure is a progressive and irreversible deterioration of renal function. Patients with this grade of kidney disease cannot survive without dialysis or a kidney transplant. The management of this condition entails regular hemodialysis sessions, dietary restrictions and recurrent hospitalizations to treat infections, electrolyte disorders and other kidney disease – related complications (Goh et.al., 2018). Patients with renal failure tend to have limited

independence and functionality. This conundrum affects their quality of life and has a dire impact on their mental health (Stavropoulou et.al. 2017)

Mental health is a vital component of individual health and wellbeing. Its presence or absence reflects on everything people do, think, or say. This is particularly important for people with renal failure, the majority of whom are hospitalized with a primary or recondary diagnosis of a mental disorder. More than one fifth of these patients had two or more psychiatric diagnoses. Patients with end-stage kidney disease experience a higher rate of mental illness than the general adult population. Beyond depression, patients might experience a myriad of psychological distress symptoms including anxiety and fear of chronic kidney disease progression (concerns about hopelessness, death, and dying) (Goh et.al., 2018). They also might experience recurrent psychological and physical trauma during the

chronic kidney disease course. The most frequent mental illness in this population is anxiety (20.0%), followed by depression (16.8%), stress reaction/adjustment disorder (2.5%), somatoform/conversion disorder (0.9%), and substance abuse disorder (0.6%). Studies have shown that patients with chronic kidney failure experience a high level of emotional distress even in the early stages of disease progression, and in most of them, they have low feelings of personal control (Stavropoulou et.al. 2017).

The burden of the disease and its behavioral implications have always been considered as principal contributors to psychological distress and disorders (Stavropoulou et.al. 2017). However, emerging research shows that a host of biochemical and immunological mechanisms can also play an important role in the development and the progression of mental health conditions among patients with renal failure. These mechanisms may mediate the translation of the social and behavioral burden of the disease in psychological stress or may contribute independently to the development of mental health disorders.

Purpose

This paper provides an overview of biological mechanisms that may contribute to the development or the progression of mental health disorders among patients with end stage kidney disease.

Methodology

To identify relevant peer-reviewed publications and gray literature the authors searched PubMed-Medline and Cochrane Library-Cochrane Central Register of Controlled Trials (Central) till June 31, 2022. The reference lists of the selected sources and relevant systematic reviews were also hand - searched to identify potentially relevant resources. The search terms: Mental health, chronic kidney disease, renal failure, depression, COVID-19, were used in combination with Boolean operators (AND, OR) when appropriate. Studies, were included if they fulfilled all the following eligibility criteria: (1) ongoing or published clinical studies reporting on digital and remote healthcare applications in the prevention or management of mental health in endstage chronic failure and (2) study types: editorials, opinion articles, perspectives, letters to the editor. No sample size restriction was applied when screening for eligible studies.

Results and limitations

For decades it has been known that immunologic factors have potent influences on neurotransmitter metabolism and neuroendocrine

function. A growing number of studies have investigated the relationships between cytokines and depression. Depression is the most common psychological disorder among patients with end-stage renal disease (Chen et.al., 2003; Palmer et.al., 2013). The etiology of dialysis-related depression is multifactorial and is related to biological, psychological, and social mechanisms. Some of the biological mechanisms include increased cytokine levels, genetic predisposition, and neurotransmitters affected by uremia. During hemodialysis, the blood dialyzer interaction has the potential to activate mononuclear and dendritic cells, leading to production of inflammatory cytokines. In particular, there is evidence that depression is associated with interleukin (IL-1), (IL-6) (Kamimura et.al., 2007; Pereira et.al., 1994) tumor necrosis factor alpha (TNF- α) and C-reactive protein (CRP) (Hirotsu et.al., 2011). It has been speculated that proinflammatory cytokines play a role in the pathogenesis of depression and growing evidence suggests that the mood disorder is associated with inflammation (Dantzer et.al., 2004). In several studies, it was also shown that there is a positive relation between depression and proinflammatory cytokines and C-reactive protein (CRP) (Panagiotakos et.al., 2004), and also the alterations of cytokines in hemodialysis (HD) may be related to depression. Furthermore, an additional study showed that serum proinflammatory cytokine levels in end-stage renal disease patients were 10 times higher than in the normal population (Heimbürger et.al., 2000). However, the repeatability of these results is yet to be determined, with conflicting evidence being reported in some occasions. Many factors may explain these conflicting results, including variability in age, gender, nationality, and methodological differences in the measurement of cytokine concentrations.

Other researches have demonstrated frequent and close relationships between serum albumin levels and depression. Cytokines production, particularly IL-6, might induce protein catabolism and lipolysis, but cytokines have a strong negative correlation with serum albumin levels. However, malnutrition, which is commonly observed in dialysis patients, is related to chronic inflammation. It has also been reported that malnutrition is associated with emotional symptoms among hemodialysis patients. Thus, chronic inflammation and malnutrition might result in fatigue by either directly activating the central nervous system through adrenal axis or by indirectly triggering multisystem deregulation (Friedman et.al., 2010).

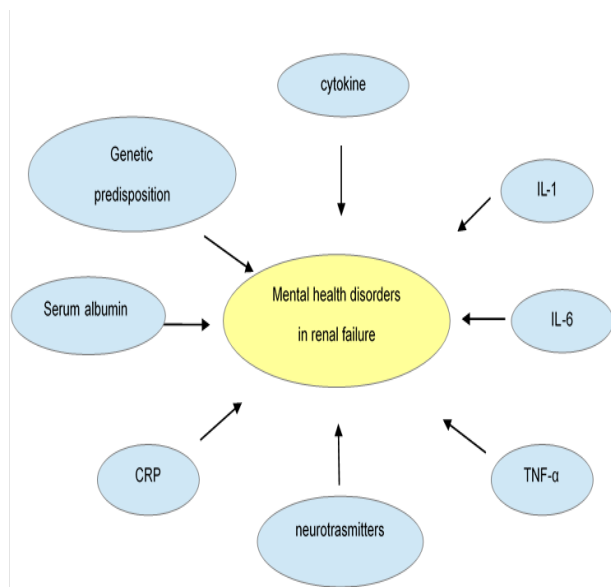


Figure 1 The biochemical and immunological underpinnings of mental health disorders in renal failure are summarized

Accordingly, reduced kidney function has been independently associated with worse microstructural integrity of brain white matter, as evaluated by diffusion tensor imaging magnetic resonance imaging. Also, albuminuria has been associated with larger white matter volume and decreased estimated GFR with higher cerebral blood flow in nondiabetic hypertensive adults. Although subclinical cerebrovascular damage in chronic kidney disease can be easily detected by MRI, this is not performed routinely in clinical practice. In addition, studies about this issue are still scarce. It is important to understand the mechanisms shared by renal impairment and brain dysfunction in order to minimize the risk for future neuropsychiatric conditions due to chronic kidney disease (Sedaghat et.al., 2015; Tamura et.al., 2016).

During the last two years, the COVID-19 pandemic has affected the lives of all people, especially people living with kidney disease. New challenges and fears surrounding the pandemic can increase the stress and anxiety (Rayan et.al., 2021). For patients that go to a dialysis center for treatment, this can increase their stress and anxiety of being exposed to COVID-19. If they have a transplant, they may have a weakened immune system and fear complications of getting infected with COVID-19. Social distancing may also increase feelings of loneliness and isolation. (Romash et.al., 2020; 2022). We don't have to forget that suicide is the most serious result of mental illness among the patients, and the percentage of suicide attemptation have increased dramatically since the beginning of the COVID-19 pandemic (Reger et.al., 2020)..

Conclusions

To conclude, the prevalence of mental instability and psychiatric disorder among patients with chronic kidney disease can be as high as 100%, depending on the diagnosis criteria and the studied population. The prevalence of depression and the risk of hospitalization due to psychiatric disturbances are higher in patients with renal failure, thus the individual health professionals and national and international health bodies need to consider new ways to protect these patient from the psychological sequelae of chronic kidney disease. Some examples are the provision of psychological support by experienced mental healthcare workers (physicians, psychologists, community nurses, social workers) throughout the patients' treatment. Collaboration between individual healthcare workers and facilities and scientific and professional societies is needed in order to integrate mental health support to the standard of care and bring quality improvement to relevant practices that have been already implemented. In the long term, it is worthwhile to investigate whether elements of the reported biochemical and immunological evidence can be used as biomarkers or therapeutic targets. This can help devise personalized treatment strategies for mental health conditions developing along the progression of kidney disease.

Conflict of interest

The authors declare that they have no conflicts of interest.

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