

Experiences of Kyrgyzstani Frontline Healthcare Workers During the “Black July” of 2020: a Qualitative Study

Опыт медиков Кыргызстана, брошенных на передовую борьбы с COVID-19 во время "черного июля" 2020 года

doi: 10.17816/CP154

Original research

Elena Molchanova, Veronika Kharsun,
Zhibek Kenzhebaeva, Aigul Alikanova

American University of Central Asia,
Bishkek, Kyrgyz Republic

Елена Молчанова, Вероника Харсун,
Жибек Кенжебаева, Айгуль Аликанова

Американский университет в Центральной Азии,
Бишкек, Кыргызская Республика

ABSTRACT

BACKGROUND: The peak of the pandemic in Kyrgyzstan occurred in July 2020 with highest infection rates, almost 1000 cases daily, compared to 100 cases prior to this date. The state health system was fatally unprepared to accommodate patients, mobilize medical staff, or provide clear instructions to the population. This study explores personal narratives of healthcare practitioners who were affected by and survived COVID-19 during the “Black July” of 2020 in Bishkek, Kyrgyzstan.

METHOD: Healthcare workers ($n=10$) were interviewed using a semi-structured interview protocol. Interviews were transcribed then analyzed in accordance with interpretative phenomenological study guidelines.

RESULTS: The narratives demonstrated both post-traumatic depreciation and post-traumatic growth, resulting in changes of attitudes, lifestyle, and identity. An important aspect of identity shift included an emerging desire for increased self-care, which was characterized by resistance against a heroic Hippocratic ideal to “to save everybody”.

CONCLUSION: COVID-19 is perceived as a psycho-socio-cultural phenomenon, which has transformed the identities of healthcare workers in the Kyrgyz Republic. Further research is recommended into developing rehabilitation programs for healthcare workers.

АННОТАЦИЯ

ВВЕДЕНИЕ: Пик пандемии в Кыргызстане пришелся на июль 2020 года, когда были зарегистрированы самые высокие показатели заболеваемости. Государственная система здравоохранения оказалась фатально не готова к приему пациентов, мобилизации медицинского персонала и предоставлению четких инструкций населению. В данном исследовании рассматриваются индивидуальные нарративы медицинских работников, которые пострадали от COVID-19 и пережили его во время “черного июля” 2020 года в Бишкеке.

МЕТОД: Медицинские работники ($n=10$) были опрошены с использованием протокола полуструктурированного интервью. Интервью были проанализированы в соответствии с принципами интерпретативного феноменологического анализа.

РЕЗУЛЬТАТЫ: Истории участников исследования продемонстрировали как посттравматическое обесценивание, так и посттравматический рост, изменивший как образ жизни, так и отношение медиков к себе. Желание позаботиться о себе сопротивлялось героическому идеалу Гиппократов "спасти всех".

ЗАКЛЮЧЕНИЕ: COVID-19 воспринимается как психо-социо-культурный феномен, который трансформировал идентичность медицинских работников в Кыргызской Республике. Рекомендуется проведение дальнейших исследований по разработке реабилитационных программ медиков.

Keywords: COVID-19; pandemic; healthcare workers; post-traumatic growth; post-traumatic depreciation; Eric Fromm

Ключевые слова: COVID-19; пандемия; медицинские работники; посттравматический рост; посттравматическое обесценивание; Эрик Фромм

INTRODUCTION

The COVID-19 pandemic significantly influenced the physical and mental health of healthcare workers (HCWs) worldwide. Despite being forced to wear personal protective equipment (PPE), HCWs had direct contact with patients diagnosed with COVID-19 and/or related pneumonia, thereby increasing their own risk of infection [1]. HCWs experienced difficulties in allocating time to seek psychological help, while a culture of shame has made it difficult to commiserate with colleagues [2]. The combination of resource shortages, increased workload, and possibly the Hippocratic ideal of saving lives provoked anxiety and uncertainty, which cumulatively took a severe toll on the psychological wellbeing and identities of HCWs [3].

Kyrgyzstan, officially the Kyrgyz Republic, since its independence on August 31, 1991, has changed six presidents, four by means of violent street protests. The country's chronic political instability has eroded its governance structures, including healthcare: salaries for public HCWs are approximately 200 USD per month [4], while the average cost of living in the capital, Bishkek, is approximately 300 USD per month [5]. Unsurprisingly, the financial situation has pushed highly trained professionals to emigrate. Additionally, since the turn of the century, there has been an unregulated increase of private clinics, many of which disappear as quickly as they appear.

"Black July", as it is popularly referred to, is generally considered to represent the peak of the pandemic in Kyrgyzstan [6]. This designation partially depends on how cases were calculated before then, as until mid-June the official number of COVID-19 cases did not exceed 100 cases per day. On July 17, 2020, the Ministry of Health merged the statistics of patients with confirmed COVID-19 and pneumonia, and on the very next day, this

figure leapt to 900 [7]; by July 19, it leapt further to 1926. During this period, one in four of the people in the Kyrgyz Republic who were infected with COVID-19 was an HCW [8]. In a study [9] conducted in 2020, it was found that following the crest of the pandemic in July 2020, 16% of Kyrgyz HCWs showed symptoms of post-traumatic stress disorder (PTSD) and 48% of HCWs reported anxiety-depression spectrum symptoms in August 2020. These findings are similar to data from China, wherein 19.9% of HCWs also showed symptoms of PTSD [10].

Although PTSD is of significant concern, the aftermath of the COVID-19 pandemic represents an opportunity to explore not only post-traumatic depreciation (PTD), but also the phenomenon of post-traumatic growth (PTG). The notion of PTG was first mentioned in a study by Tedeschi and Calhoun conducted in 1996 and has generated a lot of scientific interest ever since [11]. PTG can be defined as positive personality changes enacted by trauma survivors to cope with their trauma experiences [12]. Such personality changes usually include personal appreciation, a transformation of individual goals and life projects, increasing social intelligence and social interests, greater enjoyment of simple activities, and even changes in spirituality. Put simply, post-traumatic growth typically entails *a greater appreciation for life*, as well as an active use of "lessons learned" in the aftermath of the traumatic situation [13, 14]. Studies show that PTG has occurred during the COVID-19 pandemic, alongside PTD, which is traditionally associated with PTSD. A Turkish study proves that growth and depreciation co-occurred with post-traumatic stress during the pandemic among the general population [15]. On the contrary, a Greek study finds that HCWs are more likely to undergo post-traumatic growth than the general population, even

when compared to highly educated non-HCWs [16]. However, empirical research in general into PTG and PTSD among HCWs after the pandemic still remains limited, especially in the Kyrgyzstani context.

Against this background, the study explores personal narratives of healthcare practitioners who were affected by and survived COVID-19 during the “Black July” of 2020 in Bishkek, the capital of Kyrgyzstan.

The questions that guide the present study were:

1. How did the doctors who fell ill during “Black July” perceive themselves and those around them?
2. How do healthcare workers who have survived COVID-19 pneumonia outbreak assess their mental health status?
3. How do healthcare workers who have survived COVID-19 pneumonia outbreak consider the importance of different sources of support?
4. Did their lives change, and if so, how did their lives change after their illness?

METHOD

Design rationale

We decided to use an interpretative phenomenological analysis (IPA) that focuses specifically on personal lived experiences [17]. This method of analysis allows for an understanding not only of the mental status of medical workers but also the exploration of the perceptions of “Black July”. This type of understanding is crucial, as such perceptions offer unique perspectives that might be overlooked in quantitative research. Furthermore, IPA does not require satiety as does, for instance, grounded research, which makes it possible to interview a smaller sample of participants.

Sampling

A convenience sampling approach was adopted for the purposes of this study.

Recruitment

Participant recruitment began by posting calls on Facebook and Instagram, and via Telegram channels. Specifically, participants were either self-recruited by replying to posts on social media ($n=7$) or intentionally selected by our team ($n=3$). All participants were first given a short introduction about our study and asked about their willingness and ability to participate. They were made aware that they would not be compensated for their participation.

The participants were HCWs who had been diagnosed with COVID-19 during “Black July”. The inclusion criteria were as follows: 1) having possessed work experience in healthcare (physicians, and/or mental health professionals) during Black July; and 2) having been diagnosed SARS-CoV-2 during the same time period, either through self-diagnosis using a clinical manual, or through chest/lung scans via computer tomography, including (CT)/X-ray, and/or PCR and/or IgG/IgM blood test results; and/or being self-diagnosed according to the clinical manual. Additionally, 3) considerations were given with respect to whether they had been hospitalized, and their willingness and ability to discuss their lived experiences of COVID-19.

Procedure

Out of ten interviews, six interviews were taken in December 2020 and four in June 2021. Funding of the study was delayed in December, causing a time gap of six months.

Prior to the interview, an informed consent form was obtained. This form contained the following information: a) our study's procedure; b) the benefits and risks of participation; c) an explanation of how to acquire the results of the research; d) the availability of counseling services following the research; e) the nature of the participation as voluntary; and f) the contact information of the researcher conducting the interview.

Face-to-face interviews were conducted both online ($n=1$) and offline ($n=9$) depending on each participant's preferences. All interviews were conducted in Russian, and whose duration ranged between 80 to 90 minutes. All interviews were audiotaped and kept strictly confidential. At the outset of each interview, our study's research goals, confidentiality, the potential risks of the research, and the participants' right to withdraw at any time were explained. The interview guide was developed and discussed with the group of graduate psychology students and associate professor, and then piloted with the current study researcher who contracted and survived COVID-19 during “Black July”, 2020. Key questions were as follows: “How do you feel after hearing “COVID”?” “What impact do you believe COVID has on your life?”; “What was the most pleasant thing after COVID?”; “What makes you engage in work after contracting COVID?”; “What type of support was needed during that time?”; and “Would you like to share any lessons learnt?” Participants were also asked unique follow-up questions tailored to their individual expressions. Each interview session was

managed by therapeutic techniques, such as acceptance, active listening to establish rapport, and promotion of the authenticity of the data.

Transcription and translation

All interviews were held and transcribed in Russian. Transcription was then translated in English by one of the researchers and the accuracy of translation, in accordance with attributed meaning, was reconciled with two other researchers.

For data confidentiality reasons, participants' names were replaced with pseudonyms, and each participant received an alphabetical code referring to their gender. Their actual job placement was deleted from all transcripts, and all mentioned names and organizations were anonymized. Following the close of each interview, verbatim transcriptions were made to facilitate phenomenological analysis. Everything was transcribed, including verbal tics such as "hm", "ok", "ah", "yeah", "um", and throat clearing. In addition, all researchers reflected in their interview notes on non-verbal communication and behavioral observations of the participants. After transcription, all relevant records were deleted from the researchers' desktops and other electronic devices.

Data analysis

To analyze the data, interpretative phenomenological analysis (IPA) was used. IPA is based on a thorough interpretation of qualitative interviews and centered on the lived experiences of the interviewee [17]. We followed the six steps of data analysis presented by [18], including: 1) reading and rereading, 2) initial noting, 3) developing

emergent themes, 4) searching for connections among emergent themes, 4) moving to the next case, and 5) looking for themes across cases.

Transcripts were read by researchers fully to understand the lived experiences of participants. Afterward, researchers identified and labeled meaningful units in each transcript [19]. These meaningful units were phenomenologically interpreted by giving them codes that both described and reflected the meanings of the participants' words. The analysis has yielded 450 meaningful units, representing statements deemed significant in connection to the participants' experiences during "Black July". Each statement has been interpreted into phenomenological codes. Similar codes, in turn, were grouped together into themes. Any coding disagreements were reconsidered until the final list was completed.

Research governance

Ethical approval for the study was received by the Institutional Review Board of the American University of Central Asia. All research protocols were approved by an Institutional Review Board in December 2020 (#2020A1130).

RESULTS

Sample characteristics

Overall, ten individual interviews were conducted. Three of our participants were mental health professionals (MHPs), while seven were physicians. They were aged between 25 and 70 years old and all lived in Bishkek. Details of their demographics are presented below in Table 1.

Table 1. Participant demographic information

Name	Sex	Age	Occupation
Ms. A	Female	26	Psychotherapist
Ms. B	Female	26	Family Doctor
Ms. C	Female	67	Psychiatrist
Mr. D	Male	46	General practitioner
Ms. E	Female	35	General practitioner
Mr. F	Male	28	Resuscitator
Ms. G	Female	46	Medical Psychologist
Ms. H	Female	39	Medical cosmetologist
Mr. I	Male	28	General Surgeon
Ms. J	Female	21	Nurse

Table 2. Key themes identified

1. HCW's life changes after COVID-19 as:	2. Societal "insanity" in the face of pandemic as:	3. Adaptation of new identity by HCWs that included:	4. HCWs' coping with trauma though connection consisted of:
a. Death alike experience;	a. Inaccessibility of help;	a. Depreciation of efforts;	a. Emotional help is a new option;
b. Physical health toll;	b. Self-medication	b. Professional identity as an imperative;	b. Social media as a tool for collective treatment;
c. Mental health toll;	c. Stigmatization by colleagues and society;	c. Self-centered approach;	c. Collective empathy;
d. Collective trauma;	d. Apathy from policymakers;		

Narrative descriptions of themes culminated in the synthesized essence of the COVID-19 survivors' experiences. The following themes have been identified and verified through member checking: a) changes in the HCW's life after COVID-19; b) societal "insanity" in the face of pandemic; c) adaptation of a new identity by the HCWs; and d) HCWs' coping with trauma through connection (see Table 2 below). We will now discuss each of these themes, as presented below in Table 2.

1. Changes in the HCW's life before and after COVID-19

a. Death alike experience

Our participants tended to divide their life according to "before" and "after" the pandemic. For example, Mr. D. remarked:

"Well, let's imagine, we were all participants in a very serious [car] accident, and we were forced to (...) lie for several hours in a wrecked car among many patients and even corpses. Currently, we have come back to life, and it [the car accident] has become a part of our lives..." (man, general practitioner, 46 y.o.)

Intriguingly, those of our participants who were infected during Black July actively referred to themselves as "infected in July" in contradistinction to those "infected in other months".

All the participants evinced the feeling that COVID-19 in general was a terrifying, physically overwhelming, and emotionally devastating experience, as Ms. B. elaborated:

"Honestly, I thought about it a lot (laughs). Well, first of all, for example, I was asked already in the summer [2020], because, well, we had a discussion and so on. For instance, I had replied that for me, well, the coronavirus was mostly death and fear. It was, well, at the time." (woman, family doctor, 26 y.o.)

Intense negative emotions were prevalent in all interviews as all participants exhibited resistance to the prospect of retelling their pasts. They consistently used terms such as "catastrophe", "all-consuming fear of death", "ambulance sirens", "deaths". For example, Ms. A. explained:

"It was such an existential fear that the world wouldn't remain the same, it would change. Activities like walking along the streets, driving in the car, were banned. The restrictions exacerbated my [physical] state, and also stimulated such thoughts: What if I did not see my relatives [ever again]? What if I did not walk as before? These moments affected me heavily, you know." (woman, mental health practitioner, 26 y.o.)

b. Physical health toll

The critical moment for many of our participants came from their own physical health disturbances, many of which persisted for six to 18 months. Bodily symptoms varied (e.g., mild vs. severe), as did etiology (e.g., the novel coronavirus itself vs. community-acquired pneumonia) and rate of infection (e.g., one-time infection vs. recurrent infections). For example, Mr. I. described his condition as light:

"Well, I had mild COVID. I saw how people suffered from severe cases. I was also afraid at that moment, to be honest. Because even young guys, girls were sick, and their recovery was very troublesome. That is why I was afraid of having such severe symptoms as others..." (man, general surgeon, 28 y.o.)

Ms. E. (woman, general practitioner, 35 y.o.) by contrast, described her condition as more severe:

"My legs and muscles hurt every day, I have tremors. I would like to work without any problems... I can't get well because I still need to do a lot of [blood] tests. Recently, ... a neurologist said I had neurological changes; all reflexes have been inhibited... I haven't recovered yet, so I can't come to this [perfect] day," i.e., a return to normalcy."

Consistently, though, it was not even the intensity of infection as much as being infected itself that struck our participants as truly significant. This can be seen with respect to how infection, in itself, rather than its severity, seemed to impact their relationships, both in society and with intimates.

Due to the physical disturbances, it became difficult to invest the same amount of time and energy into their work. Intellectual capacities were also weakened. A normal working day was perceived as long and exhausting. In Mr. D.'s words:

"Mm, I wish we could have a part-time job, only until 12 pm for covidniks [COVID patients]. Don't expect from people who have suffered [from COVID] to work full-time. Especially, don't expect [job performance] from people who have survived severe COVID-19 cases. After 12 pm, they'd better have lunch, walk, and attend a support group, how they are called, hm... 'Hello, I survived COVID' — and all people respond: 'Oh, hello, how are you doing?'"
(man, general practitioner, 46 y.o.)

c. Mental health toll

In addition to physical disturbances, our participants struggled with negative moods and thoughts for approximately one year after infection. Ms. B. described her psychological state in the following manner:

"As if something is wrong with me and I perceive the world differently. I don't know, but I have such feelings. (Pause). Of course, the coronavirus has changed a lot in our lives, my life has completely changed. I guess I have some mental malfunction; probably it's better to say I developed a mental disorder." (woman, family doctor, 26 y.o.)

We should note that the negative psychological changes also had a ripple effect beyond our participants.

For example, Ms. E. (woman, general practitioner, 35 y.o.) describes how her infection impacted her family dynamics:

"[Relatives] are tired that I have been ill for a long time... Even if I tell my husband that I am sick, he doesn't react. My mother-in-law looks at me with disapproval... (pause), she forces me to leave the house. For example, she constantly says to him: She is very bad and sick. She is 40 years old, she will not give birth anymore. Well, I'm only 35."

At the time of their interviews, some of our participants were considering undertaking psychotherapy. In fact, three had already visited mental health counselors. Ms. H. explained:

"I approached a psychologist because of mood changes. I had been going through this stress for six months. I had believed that it would pass, but it didn't. I have been in therapy for two-three months and observed how my mental health improved. I am no longer scared, (pause), well, apathy ceased ... Gradually, I have been recovering, I am back to normal life which is no longer the same as before. Anyway, I am still cautious about PPE and pay attention to someone's sneezes and coughs."
(woman, medical cosmetologist, 39 y.o.)

Ms. E. (woman, general practitioner, 35 y.o.) was among those who had sought counseling. She had had a severe form of the COVID-19 that negatively impacted her physical functioning, which, in turn, caused depression and suicidal thoughts. Although they had not seen any fatalities, the fact there were fatalities at all caused them severe distress.

d. Collective trauma

In sum, the before-after dynamic evinced by our participants revolved around how the pandemic had significantly impaired their work, social, and family life. All of them made a point to describe COVID-19 in medical terms as a disease that activated a stress response. Mr. D. expressed concerns about the long-term impacts not only to himself as an HCW, but to Kyrgyzstan as a society with respect to the skilled labor pool and called for a psychotherapeutic intervention:

"It is a real problem because we can simply lose a third of the society in the next three-five years. This third is the working part of the society, most people aged 40–50, who have been severely infected... They are experts, they can share knowledge, they have to. I guess they will endure fears that make them outcasts... A whole generation of human capital will simply vanish... Middle-aged people... yes, they are in urgent need of therapeutic interventions." (man, general practitioner, 46 y.o.)

2. Societal "insanity" in the face of the pandemic

a. Inaccessibility of help

Our participants consistently perceived COVID-19 as a psycho-social issue that revealed deficiencies in all spheres of everyday life.

"It was impossible to get a state ambulance visit. Only private medical care was available, but their services were unaffordable. Thus, I concluded that patients who could pay for their services survived, and those who [couldn't pay], well. I had such patients, and tried to help an old lady, aged 90. She lived alone, without care, she also died. [I lost] in total two patients." (Ms. E, woman, general practitioner, 35 y.o.)

Participants also highlighted obstacles to care thrown up by the governmental response, and how it intensified a sense of uncertainty. Ms. A. elaborated:

"Well, initially, I hadn't yet encountered restrictions to stay at home after 9 pm. When we were permitted to leave for personal needs... I was able to tolerate them. By that time, it had been considered a norm, and a wise decision, again, for the safety of citizens. [But] then curfew was announced, and it caused discomfort, chaos, as it was unclear what happened next. Regarding the restrictions, I didn't get the point of the transport ban between cities. It was very difficult to accept this norm." (woman, psychotherapist, 26 y.o.)

When one of our participants, Mr. D., was infected, he needed to fend for himself in the face of an overwhelmed healthcare system, essentially serving as his own doctor:

"Since all the hospitals had been booked, it was impossible to be hospitalized... It was tough to stay in day-night stations, so I negotiated with good friends to secure a bed in a private clinic... All doctors were working in intensive care units, so none of them were able to help me. I was a moderate patient, not an emergency case. I started to take antibiotics, well, in general, to employ treatment: [examining my own] medical history, [conducting my own] health examination and [blood] tests... I started to solve this issue as a health specialist." (man, general practitioner, 46 y.o.)

Similarly, Mr. I. needed to depend on his roommates for help when he fell ill, *"I went to the hospital to have a drip put, and all the rest I managed at home. Parents were not in Bishkek. Well, I bought everything myself... I share an apartment with roommates; I asked them to buy groceries, and they did."*

b. Self-medication

Self-medication was prevalent among the general population, as well. Ms. A. highlighted how public panic led to the compulsive purchases of medications: *"I remember that we didn't have enough drugs [because] panic attacks triggered everyone to take drugs off the shelf, when, in fact, people did not need them. So, I decided to avoid medication..."*

Ms. C. explained that the panic began when, *"[They] prescribed drugs, whatever they wanted. People started to take those drugs and even engaged in self-medication: drips, antibiotics, then hormones, and all other stuff."* Ms. C. further suggested there was a lack of understanding between HCWs and the general population, the former *"hav[ing] a more cold-hearted approach,"* the latter *"discriminat[ing] against proper medication."* (woman, psychiatrist, 67 y.o.)

c. Stigmatization

This divide in approaches between HCWs and the general population points to the sub-theme of stigmatization, which was also quite salient among our participants' responses. They repeatedly remarked that non-HCWs focused on their personal safety and easily became frightened whenever they heard about COVID-19 infections. They also reported use of sarcasm and disdain directed toward survivors from those who had not yet been infected.

Ms. C. explained:

"People who had already been ill were stigmatized as dangerous. They were considered to be contactable only at a distance. Some were determined to engage in such [stigmatization], while other people, well, made fun, treating infected people with irony... Some people weren't able to tolerate their fears; consequently, they started to request social distanc[ing] in private communications." (woman, psychiatrist, 67 y.o.)

According to our participants, their relatives, colleagues and friends believed that COVID-19 differed substantially from seasonal cold or any other disease with respect to its potential danger. Ms. C. described themselves as being treated by their intimates as though they had been disabled. Ms. J. remarked that they were actively referred to as "covidnik" or "crowned" (a reference to the crown-like structure of the novel coronavirus). Ms. E. (woman, general practitioner, 35 y.o.) illustrated this:

"My husband hadn't even come within 10 meters of me for two-three months... They delivered food from an open window leaf as I lived in a separate room. It was good that we were all isolated; consequently, they either got infected [with] a mild form or were not infected at all. Nonetheless, they started to treat me as if I had plague or leprosy. Had they been doctors, they would understand that [COVID-19] was a regular viral infection, and even after infection, you would still have some consequences".

The general population exhibited two negative tendencies. On the one hand, HCWs could be the focus of blame for supposedly transmitting infections; they were also frequently accused of giving ineffective treatments or being professionally incompetent. Ms. J. described her experience in this respect: *"And (pause), I realized that some people, not all, didn't develop the capacity to accept help. I came during lunchtime, in non-working hours, and delivered free medical care. I was very upset; they belittled me... I just wanted to help and was paid off by arrogance. I wanted to cry."* On the other hand, HCWs could also be the focus of conspiracy theories, as in the case of Ms. G.:

"I shared a very open and detailed post [about COVID-19 infection] on social media. Many haters bombarded me via direct messages. Mainly, people supported, even consoled. Yet, many people sent me messages like, 'How much did the Ministry of Health pay you for?' and 'Nobody is sick.' They wrote it to the person, me... who was severely infected. They wrote, 'Come on, it might have been a lie; we couldn't see that you were sick.'" (woman, medical psychologist, 46 y.o.)

d. Apathy from policy makers

Finally, our participants also complained about the behavior of state hospital administration. In the words of Ms. E (46 y.o.), hospital administrators consistently took *"the patient's side, not their employees"*, which amplified their sense of being on their own. Our participants also alleged that hospital administrators attempted to manipulate statistics by strictly considering positive PCR results as evidence of infection, thereby excluding community-acquired pneumonia and other health complications potentially linked to the novel coronavirus. Nevertheless, HCWs continued to work, albeit with increased distrust for their supervisors, to whom they also allotted a portion of the blame for the high mortality rates:

"Primary care hospitals, for example, almost all hospitals for in-care patients were closed, and the patients were left, well, simply, without anyone, without anything; they could not even get treatment properly, as if they had just been left behind, and that's it. (...) People, well, patients have already started self-medication, well, many get mistreated unfortunately. And this is a problem not only of our leadership, but also of the Ministry [of Health]" (woman, 35 y.o.)

We should note that some of our participants came to understand that they needed more than purely physiological self-medication. However, they expected that the Ministry of Health would organize free-of-charge rehabilitation and counseling groups for HCWs. However, these hopes went unmet. Worse yet, HCWs were, and indeed remain so at the time of writing, largely uncompensated for their risk, an issue that intersected with their chronically low salaries and the problems of service access. Ms. B. explained:

"I wish (laughs) the Ministry of Health would implement some projects aimed at mental health and improvement of health workers' status... Death is often an unexpected and frustrating event for anyone, even health professionals... I noticed that the cost per [psychotherapy] session was 2000 soms (25 USD). Taking into account the salary of a medical worker, I think it is oh-oh-very expensive." (woman, 26 y.o.)

3. Adaptation of a new identity

a. Depreciation of efforts

Even before "Black July", Kyrgyz HCWs risked burnout from a workload consisting of long hours, night shifts, and employment at multiple workplaces (WHO, 2018). During the height of the pandemic, HCWs came to feel devalued by the general population, believing this to be due to how patients consistently failed to comply with quarantine measures. As Mr. I. explained:

"[Patients] are arrogant, demanding, and eventually, the doctors are to blame. Well, it happens all the time. I work in intensive care surgery. They say, 'You have to treat us; you are the doctors.' For sure, we are doctors, but doctors have specializations. We refer them to other doctors, and they complain. [This] often happens, almost every day." (male, general surgeon, 28)

Similarly, Ms. B remarked:

"After exiting the red zone, I had already started to work fully in the duty stations, and suddenly a wave of disappointment swept me. My colleagues and plenty of health professionals worked hard, some of them died. Despite these facts, [regular maintenance of] social distance hasn't been accomplished yet. People are reluctant to wear PPE, sanitize their hands; none of them do it. I feel that we [HCWs] have come a long way for nothing. People are unlikely to comprehend, well, (pause) the essence of the coronavirus, the lockdown, and all this stuff." (woman, 26 y.o., family doctor)

Our participants confessed to being unprepared for the pandemic in every way, ranging from their own training and specializations to the lack of proper management,

such as having appropriately detailed clinical protocols. In the words of Mr. I:

"My friends are proctologists and urologists who have never been familiar with respiratory diseases. And they [told me]: 'Believe it or not, we had to learn how to treat [COVID-19]. The clinical protocol was not detailed, [but] we treated accordingly, and people died. Then we started to treat it incidentally, and we failed.'... We have been wondering and searching for the right treatment modality." (man, 28 y.o.)

b. Professional identity as an imperative

The research team discerned the "wounded healer" at work in our participants' accounts. As part of their personal narratives, they consistently included patients' stories. They also invoked many of the beliefs traditionally encoded into an HCW identity, using terms such as "all-responsible", "know-it-all": "Just as a physician, I think it should be a little different than for anyone else. Because, well, after all, it turns out that, well, the life of another person depends on me...", as Ms. A (psychotherapist, 26 y.o.) stated. These thought patterns initially led many of them to resist seeking psychological assistance and to instead focus solely on treating the physiological dimension of their own infections. Some even showed signs of possible denial, even at the time of the interview, as in the case of Ms. C.: "I didn't have pneumonia; only my stomach and muscles were infected. Therefore, I didn't consult with anyone, I made a treatment plan. I didn't take drips or any medications, only a ton of vitamins, multivitamins. None of my relatives got infected during that time."

Of our participants who self-medicated at home, they reported experiencing isolation and lack of support, even from intimates, in ways that eventually impacted upon their identities. According to our participants, there a perception of "doctors as doctors," i.e., of those who gave care but needed to receive none in return. Ms. B. demonstrated how this lack of belief that HCWs could actually become infected manifested itself both in bureaucracy and at home: "I didn't [say] I was infected, because [the management] would require proof of the infection (negative PCR), despite symptoms. [Even] my acquaintances, my friends, colleagues, well ... they would also request evidence besides PCR, for example, X-ray, CT scan, or IgG blood tests." This reveals the social

nature of personal identity: our participants were not only “healers” because of personal conviction, but also because of societal expectations.

c. Self-centered approach

Slowly, new identities began to form, as our participants reported. These new identities were characterized by resorted life priorities and altered self-perceptions and relations to the notion of disease. All our participants evinced a more person-centered approach to their patients, such that the person, rather than the illness, was the main subject in the communication. Ms. E. remarked: *“(Pause). I learned to understand diseased people. Before, it was principal-agent relations; they needed medical care, and we provided it. I relate to them as my patients, but there is more compassion now. I am inclined to get them out of trouble.”* Ms. E. also noted the persistence of her sense of duty as an HCW: *“At the moment, I have been struggling with ill-health, yet still, I’m trying to help others...”* (woman, general practitioner, 35 y.o.)

Another significant shift occurred in taking more time for self-care, as when Ms. H. (woman, medical cosmetologist, 39 y.o.) explained: *“I meditate regularly. I do meditation, sports, go to work, and meet with friends. It helps me to restore my social life, it is the way to reconnect with people.”* As a group, they expressed pride, worth, and significance in the way their profession tried to rise to meet the challenge of the pandemic. As individuals, they consistently expressed greater appreciation for intimates, a renewed capacity to search for help, and a desire to advocate positive changes in Kyrgyz society. In the words of Ms. C.:

“Well, I concluded that one should care for health... For example, I developed pneumonia after... I caught a cold and didn’t care much about the temperature regime. I advise everyone (pause) to eliminate stress as it negatively impacts the immune system, well, if possible.” (woman, psychiatrist, 67 y.o.)

4. Coping through connection

a. Emotional support is a new option

According to our participants, the availability and variety of support significantly improved their psychological and physical functioning during the pandemic. As our sample included both physicians and mental health practitioners

(MHP), we identified two distinct approaches. Mental health specialists appear to have been more competent in searching for emotional support, whereas physical health specialists, already more competent in treating their infections, appear to have focused on success stories and practical progress.

Mental health specialists found it relatively easy to establish networks of support with their supervisors, other therapists, family members, and colleagues. For example, Ms. A, who was experiencing generalized panic, informed her supervisors of her condition and then actively sought individual psychotherapy. Mental health specialists also had a greater capacity for psychological self-care, limiting their self-criticism and consciously practicing self-compassion.

They also avoided engaging in avoidant behaviors, such as excessive working or social isolation, and even set aside one to two months for rehabilitation. For example, Ms. G. initially resisted psychological treatment, explaining that sessions were *“hard, frankly speaking... Taking into account memory and attention problems which were important to the working process, you began to feel sorry for yourself.”* But as her feelings of self-pity increased, her psychological training kicked in: *“I realized that I needed help. Well, damn, well, I had to care about myself, and only then about others.”*

In contrast, some health professionals succeeded in self-medication and physical health recovery, whereas emotional and psychological help was not considered as an option. Physicians deprioritized their mental well-being. Mr. F. explained:

“In regard to [my] mood, I was [more] concerned about the situation of my society. At that time, [I felt] we shouldn’t grieve or feel sad; we ought to work as there was a shortage of doctors... I worked as usual, although [I] got exhausted sooner. Sometimes I had to work despite feelings of not wanting to and while enduring fatigue.” (man, 28 y.o.)

b. Social media as a tool for collective treatment

Instead, they tended to throw themselves into learning more about COVID-19, sharpening their diagnostic skills, devising treatment plans, and sharing information with colleagues, who were focal points of contact. For example, they shared the most recent clinical manuals, success stories, and new COVID-19 medications.

Physical health specialists were also quick to use social media to disseminate information, as well as to work with patients. Mr. F. explained:

“Social networks were beneficial to overcome[ing] this period. I couldn’t imagine any other effective medium of communication... Volunteers, many doctors used social media... I consulted patients on WhatsApp, shared posts about pseudo-medications that became popular. I made live broadcasts on the mayor’s web page. When I was sick, people contacted me. Social media was useful, that’s for sure.” (man, 28 y.o.)

Ms. H. used social media to collaborate with her own colleagues: *“And, my girls, they are health professionals and work in Moscow [and] together we developed a treatment plan.”* (woman, medical cosmetologist, 39 y.o.)

Both types of HCWs were reluctant to seek support as they did not want to risk their intimates’ health. As Ms. B. explained:

“[My] parents, of course, were worried... [They] asked many questions, such as whether I was passing blood tests, CTs, and other screening tools. But I replied that everything was fine, and I worked as a doctor, even in the red zone; therefore, I could make a self-assessment. And (pause), well, I guess that stopped them.” (woman, 26 y.o.)

c. Collective empathy

In general, our participants tended to prioritize the well-being of their intimates over their need for emotional support. Nevertheless, some of our participants expressed appreciation for the love that was shown to them, as in the case of Ms. J.:

“I noticed that my relatives and friends worried [about], supported, and cared [for me] a lot. My girlfriends looked after me, cooked at this time. Mom wanted to move into my apartment. (Laughs)... I realized how much they cared about me, and I started to appreciate them more. I honor my family and friends; yes, our friendship is getting stronger.” (woman, 21 y.o., nurse)

The participants mentioned that they became the beneficiaries of and received help from their neighbors,

colleagues, and friends. In response, they also tried to fulfill the needs of patients during their illness and recovery. Ms. J. commented: *“And due to the fact that I got infected, my girl mates with whom I lived, they — I infected them all, and to some extent it was my responsibility, dep. Forgetting about them, I saved others and infected loved ones...”*

DISCUSSION

Summary of the main findings

The present study indicates that Kyrgyz HCWs perceive “Black July” to be a turning point in their lives, expressing changes in their attitudes, lifestyles, and identities, both as individuals and as HCWs. Our participants repeatedly emphasized the interconnection between individual health, both physical or mental, and the collective, including governmental systems, general society or family. Intriguingly, they tended to highlight positive changes with respect to themselves as individuals and professionals, yet emphasized negative changes with respect to Kyrgyz society.

Strengths and limitations

Our study contributes to the understanding of psychological responses to pandemic-related trauma, particularly PTG among HCWs, as well as understanding how the COVID-19 pandemic impacted healthcare systems beyond the Western context, particularly in the former Soviet Union and in Central Asian countries.

Our study has a number of limitations. Firstly, we were unsuccessful in controlling for possible biases from our research team. All members of the research team are citizens of Kyrgyzstan, and three of the four team members were at some point infected by COVID-19. Secondly, the results cannot be generalized to all HCWs in our country or to society.

Existing literature on mental health consequences of the COVID-19 pandemic in Central Asia

Despite a growing number of quantitative studies, qualitative studies, especially those focused on physicians, are still somewhat lacking. Moreover, there are only a few scientific articles that discuss the mental health consequences of COVID-19 pandemic in the Central Asian context. Thus, Bazarkulova and Compton [20] explored the effects of the pandemic on the mental well-being of male

and female doctors in Kazakhstan via survey data. The article demonstrates that occupational and household stressors are reported differently by males and females. Another study conducted with a sample of 466 students in the Kostanay region of Kazakhstan showed that levels of anxiety had not significantly risen since the beginning of the pandemic; female students experienced stronger fear; and there was no growth in substance use among Kazakh students [21]. The literature on the Kyrgyz population is even less readily available. Uzakov et al. [22] surveyed 643 Kyrgyz respondents and 189 Kazakh respondents aged 17–25 about anxiety levels related to COVID-19. The associated findings indicate that anxiety levels among people in Kyrgyzstan are higher than in Kazakhstan. According to the authors, this may be explained by the poorer quality of the information about COVID-19 that the Kyrgyz sample received (social media and society; we have reported earlier that media exposure may influence the distress felt by the individuals), a failure of the Kyrgyz government to respond to the pandemic properly, and lower conformity to sanitary rules. The research includes several limitations such as an unrepresentative sample, the potentially significant difference in the number of Kyrgyz and Kazakh respondents, and the focus on a particular age group, the latter of course ruling out older people in this instance.

Frommian “insane society”, PTD and PTG

Fromm [23] described the term “*insane society*”, and postulates that not only can individuals suffer from mental disorders, but so can a society. Moreover, individuals in such a society will be unable to stay mentally healthy, as they will be not able to satisfy their needs. In light of this, we hypothesize that the Kyrgyzstani society fits the status of “*insanity*” [24–27]. In particular, due to the continuous endemic social problems and chronic political corruption, Kyrgyzstani health workers suffer from traumatic stress (TS). Consequences of TS on the societal level can be considered representative of collective TS. HCWs can be considered an indicator of sorts via which researchers can trace the thread of trauma that runs between, and unites, individuals and the collective. We have detected a dualism of an HCW’s self-identity, which was earlier described as the “*wounded healer*” [28]¹.

There was an existing discrepancy between acknowledging of one’s own woundedness on the one hand, and containing the latter’s hopes and expectations of being a healer on the other [29]. According to Williams [30], no patients’ illness is solely theirs as an individual; societal factors play a decisive role in how they become sick or wounded.

What can we expect to find when we examine HCWs’ identity after they have been “*wounded*” by TS? Crucially, the metaphorical incorporation of the patients’ woundedness into themselves does not always have a pathological result. Trauma has its own dualism as it can cause not only a sense of depreciation, but also growth [10, 11]. Post-traumatic growth (PTG) is usually associated with positive personality changes following the experience of highly challenging traumatic events. Such personality changes usually include personal appreciation, a transformation of individual goals and life projects, increasing social intelligence and social interests, greater enjoyment of simple activities, and even changes in spirituality. PTG typically entails a greater appreciation for life in the context of “*lessons learned*” in the aftermath of the traumatic situation [12]. At first glance, post-traumatic growth stands in contrast to post-traumatic depreciation (PTD), which is characterized by negative personality changes such as increased fear of other people, increased cynicism, increased isolation, obscurantist thinking, loss of interest in one’s most cherished activities and even career, and so on. Although PTG and PTD can be seen in different proportions in the demographic group that has undergone a challenging traumatic event, they are nevertheless two sides of the same coin [31].

This intertwining of the individual and collective aspects of the pandemic expressed itself in a “*wounded healer*” phenomenon within the very identities of our participants. On the one hand, an image of the healer is evident from the narratives, indicating that HCWs were resilient even in the face of a disempowering situation. On the other, there was a greater self-awareness in at least two aspects: firstly, our participants’ limitations as HCWs, as evidenced by the some turning to psychotherapy and others toward collaboration, in both cases signaling a shift away from the individual self-reliance fostered by the traditional image of the “*almighty healer*”. Another was with respect to their own values and perspectives, as evidenced by greater appreciation for their intimates, and taking more time for self-care. Although the breadth and

¹ The first identity is “*a healer*” and another is “*wounded person*”.

depth of these changes varied among participants, the occurrence of a collective change within their professional community cannot be denied.

IMPLICATIONS FOR FUTURE RESEARCH AND PRACTICE

Future research may need to be devoted to assessing both posttraumatic growth and posttraumatic depreciation using culture-sensitive scales. Such data will help to create quantitative scales that measure changes in perceptions of self and the world during a pandemic. Furthermore, the research will help to develop rehabilitation programs for healthcare workers with an eye toward future pandemics and ascertaining the possible ramifications that identity changes, such as those found in this research, may have on broader society.

CONCLUSION

Based on the findings of the current study, Kyrgyzstani society was largely unable to meet the needs of its individual members. Governmental policies and administrative apparatuses have become an obstacle to HCWs' ability to perform their duties, alongside the fact that ordinary people panicked and/or failed to grasp the HCWs' and patients' situations. All told, Kyrgyz society was already "insane" in Frommian terms before COVID-19, and became more "insane" during the pandemic. We were unsuccessful in controlling for possible biases from our research team and the results cannot be generalized to all HCWs in our country or to the society. This research will help to develop rehabilitation programs for healthcare workers with an eye toward future pandemics and ascertaining possible ramifications, such as identity changes.

Article history:

Submitted: 13.12.2021

Accepted: 16.05.2022

Published: 08.06.2022

Funding: This work was carried out with a grant provided by the American University of Central Asia (AUCA) to conduct research on how the mental health of Kyrgyzstan's healthcare workers (HCWs) was impacted by the COVID-19 pandemic.

Conflict of interest: The authors declare no conflict of interest.

Authors' contribution: All the authors made a significant contribution to the article, check and approve its final version prior to publication.

For citation:

Molchanova ES, Kharsun VS, Kenzhebaeva ZhS, Alikanova AS. Experiences of Kyrgyzstani frontline healthcare workers during the "Black July" of 2020: a qualitative study. *Consortium Psychiatricum* 2022;3(2):In Press. doi: 10.17816/CP154

Information about the authors

***Elena Sergeevna Molchanova**, MD (Psychiatry), Full Professor of Psychology Program of the Social Science Division in American University of Central Asia, Bishkek, Kyrgyz Republic, ORCID: <https://orcid.org/0000-0002-4268-9008>, Scopus Author ID: 56993086700

E-mail: molchanova_e@auca.kg

Veronika Sergeevna Kharsun, MA, alumna of Master Program in Applied Psychology at the American University of Central Asia, 2021 graduate

Zhibek Sovetbekovna Kenzhebaeva, MA, alumna of Master Program in Applied Psychology at the American University of Central Asia, 2021 graduate

Aigul Sagynbaevna Alikanova, MA, alumna of Master Program in Applied Psychology at the American University of Central Asia, 2021 graduate

*corresponding author

References

1. Giusti EM, Pedrolì E, D'Aniello GE, Stramba Badiale C, Pietrabissa G, Manna C, Stramba Badiale M, Riva G, Castelnovo G, Molinari E. The Psychological Impact of the COVID-19 Outbreak on Health Professionals: A Cross-Sectional Study. *Front Psychol.* 2020;11:1684. doi: 10.3389/fpsyg.2020.01684
2. Galbraith N, Boyda D, McFeeters D, Hassan T. The mental health of doctors during the COVID-19 pandemic. *BJPsych Bull.* 2021 Apr;45(2):93-97. doi: 10.1192/bjb.2020.44
3. Greenberg N, Docherty M, Gnanapragasam S, Wessely S. Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *BMJ.* 2020 Mar 26;368:m1211. doi: 10.1136/bmj.m1211
4. Kaktus.media [Internet]. Maslova D. [How the salaries of doctors have decreased (!) in Kyrgyzstan. Address to the President, 2020, July 16][cited 19 May 2022]. Available from: https://kaktus.media/doc/417240_kak_v_kyrgyzstane_ymenshalas_zarplata_medikov_obrashenie_k_prezidenty.html Russian.
5. Kaktus.media [Internet]. Shabalin A. [Bishkek, New York, London. Comparing the cost of living, 2019, March 1][cited 19 May 2022]. Available from: https://kaktus.media/doc/387511_bishkek_nu_york_london_sravnivaem_stoimost_jizni.html Russian.
6. Eurasianet [Internet]. Kumenov A, Imanalieva A. Pneumonia fudge hiding scale of Central Asia's coronavirus emergency. 2020, July 16 [cited 19 May 2022]. Available from: <https://eurasianet.org/pneumonia-fudge-hiding-scale-of-central-asias-coronavirus-emergency>
7. Dzushupov K, Lucero-Prisno DE, 3rd, Vishnyakov D, Lin X, Ahmadi A. COVID-19 in Kyrgyzstan: Navigating a way out. *J Glob Health.* 2021 Jan 30;11:03020. doi: 10.7189/jogh.11.03020

8. Molchanova E. Preliminary results of the nationwide survey on COVID-19 consequences [Paper presentation]. Bishkek: Kyrgyz State Medical Academy Annual Meeting; 2021.
9. Xiong LJ, Zhong BL, Cao XJ, Xiong HG, Huang M, Ding J, Li WT, Tong J, Shen HY, Xia JH, et al. Possible posttraumatic stress disorder in Chinese frontline healthcare workers who survived COVID-19 6 months after the COVID-19 outbreak: prevalence, correlates, and symptoms. *Transl Psychiatry*. 2021 Jul 5;11(1):374. doi: 10.1038/s41398-021-01503-7
10. Jayawickreme E, Blackie LER. Post-traumatic Growth as Positive Personality Change: Evidence, Controversies and Future Directions. *European Journal of Personality*. 2014;28(4):312–331. doi: 10.1002/per.1963
11. Moreno-Jiménez JE, Blanco-Donoso LM, Demerouti E, Belda Hofheinz S, Chico-Fernández M, Moreno-Jiménez B, Garrosa E. The Role of Healthcare Professionals' Passion in Predicting Secondary Traumatic Stress and Posttraumatic Growth in the Face of COVID-19: A Longitudinal Approach. *International Journal of Environmental Research and Public Health*. 2021;18(9):4453. doi: 10.3390/ijerph18094453
12. Park CL. Making sense of the meaning literature: an integrative review of meaning making and its effects on adjustment to stressful life events. *Psychol Bull*. 2010 Mar;136(2):257–301. doi: 10.1037/a0018301
13. Roepke AM, Jayawickreme E, Riffle OM. Meaning and Health: A Systematic Review. *Applied Research in Quality of Life*. 2013;9(4):1055–1079. doi: 10.1007/s11482-013-9288-9
14. Ikizer G, Karanci AN, Gul E, Dilekler I. Post-traumatic stress, growth, and depreciation during the COVID-19 pandemic: evidence from Turkey. *Eur J Psychotraumatol*. 2021 Feb 18;12(1):1872966. doi: 10.1080/20008198.2021.1872966
15. Kalaitzaki A. Posttraumatic symptoms, posttraumatic growth, and internal resources among the general population in Greece: A nation-wide survey amid the first COVID-19 lockdown. *Int J Psychol*. 2021 Oct;56(5):766–771. doi: 10.1002/ijop.12750
16. Gergen KJ. *Social Construction in Context*. London: Sage; 2001. p. 150–151.
17. Alase A. The Interpretative Phenomenological Analysis (IPA): A Guide to a Good Qualitative Research Approach. *International Journal of Education and Literacy Studies*. 2017;5(2):9. doi: 10.7575/aiac.ijels.v.5n.2p.9
18. Rossi G, editor. *Psychology: selected papers*. Rijeka, Croatia: InTech; 2012. Qualitative research methods in psychology; p. 175–206.
19. Giorgi A. The Theory, Practice, and Evaluation of the Phenomenological Method as a Qualitative Research Procedure. *Journal of Phenomenological Psychology*. 1997;28(2):235–260. doi: 10.1163/156916297x00103
20. Smith J. *Qualitative psychology*. London: Sage; 2007.
21. Bazarkulova D, Compton J. Gender Differences in Self-Reported Stress and Health Behaviors of Doctors in Kazakhstan During COVID-19. *Feminist Economics*. 2021;27(1–2):81–102. doi: 10.1080/13545701.2020.1853789
22. Konstantinov V, Berdenova S, Satkangulova G, Reznik A, Isralowitz R. COVID-19 Impact on Kazakhstan University Student Fear, Mental Health, and Substance Use. *Int J Ment Health Addict*. 2022;20(2):888–894. doi: 10.1007/s11469-020-00412-y
23. Uzakov O, Komissarova S, Alymkulov A, Kermaly kzy M. Comparative Characteristics of the Frequency and Level of Anxiety Disorders Among Respondents Living in Kyrgyzstan and Kazakhstan during COVID-19 Pandemic. *Eurasian Medical Journal*. 2021;(3):24–31.
24. Fromm E. *The Sane Society*. New York: Rinehart and Company; 1955.
25. Business Ombudsman Institute (BOI) of the Kyrgyz Republic. (2021, April 21). Annual Report 2020. <https://boi.kg/media/images/af0f4fd4-1540-4e52-a5b3-c17ddedfe474.pdf>
26. Transparency International [Internet]. Corruption Perceptions Index (CPI) 2020: Eastern Europe and Central Asia. 28 January 2021 [cited 19 May 2022]. Available from: <https://www.transparency.org/en/news/cpi-2020-eastern-europe-central-asia#United Nations>.
27. Business Ombudsman Institute [Internet]. Policy brief: COVID-19 and the need for action on mental health [cited 19 May 2022]. Available from: <https://unsdg.un.org/sites/default/files/2020-05/UN-Policy-Brief-COVID-19-and-mental-health.pdf>
28. City University London [Internet]. Schonau B. The paradox of the 'wounded healer'. [Unpublished doctoral dissertation]. City University London, 2012 [cited 19 May 2022]. Available from: <https://openaccess.city.ac.uk/id/eprint/2993/>
29. Guggenbuhl-Craig A. [Power of the archetype in psychotherapy and medicine]. Saint Petersburg; 1997. Russian.
30. Williams GH. The determinants of health: structure, context and agency. *Sociology of Health & Illness*. 2003;25(3):131–154. doi: 10.1111/1467-9566.00344
31. Marshall EM, Frazier P, Frankfurt S, Kuijer RG. Trajectories of posttraumatic growth and depreciation after two major earthquakes. *Psychol Trauma*. 2015 Mar;7(2):112–121. doi: 10.1037/tra0000005