Master of Public Health

Master de Santé Publique

Mental health assessment during the full-scale invasion within the general Ukrainian population: state, beliefs and behaviors, query to change (cross-sectional study)

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Все буде Україна.

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PTSD Post-traumatic Stress Disorder
MH Mental Health
CI Confidence Interval
OR Odds Ratio

Abstract

Introduction. The Russian invasion in Ukraine has significantly affected the mental health of the population, leading to increased rates of stress, anxiety, depression, and PTSD. However, access to mental health support remains limited due to factors like professional shortages, lack of awareness, stigma, and cultural barriers. Comprehensive changes are necessary to address these challenges.

Methods. This cross-sectional survey included participants aged 16 and older affected by the war, collected through social media and personal contacts. Data was analyzed descriptively and using correlation analysis.

Results. The majority of respondents rated their mental health as fine or good. Anxiety was the most prevalent emotion, particularly among younger age groups. Different genders and age groups exhibited varying levels of emotions such as fatigue, peace, anger, and sadness. Sleep and appetite problems were common, with differences observed between age and gender groups. Many participants felt self-reproach for not doing enough, and coping mechanisms varied among age groups. Mental health concerns ranked lower than somatic health worries. Stigma and self-stigma surrounding mental health were identified, influencing the intention to seek professional support. Access to professional mental health support and beliefs about it varied, considering language barriers and information availability. A portion of respondents expressed openness to alternative methods and future psychological help, although location and stigma played a role.

Conclusion. The war in Ukraine has negatively impacted mental health but has also provided an “open window” for changes in attitudes towards mental health. Urgent measures adapted to peoples beliefs and behaviors are needed, including increased psychological aid, establishment of PTSD centers, specific training of mental health professionals. Digital interventions and education campaigns can reduce stigma and improve access to these services. Long-term efforts should focus on governance decisions, regulations, and mental health awareness in education. While some measures may be postponed until postwar times, it is crucial to initiate fundamental changes now.

Keywords: war in Ukraine, PTSD, stigma, mental health system in transition, behavior change, digital interventions in mental health.

Résumé

Introduction. L'invasion russe en Ukraine a eu un impact significatif sur la santé mentale de la population, entraînant une augmentation des taux de stress, d'anxiété, de dépression et de trouble de stress post-traumatique (TSPT). Cependant, l'accès aux services de santé mentale reste limité en raison de facteurs tels que la pénurie de professionnels, le manque de sensibilisation, la stigmatisation et les barrières culturelles. Des changements complets sont nécessaires pour relever ces défis.

Méthodes. Cette enquête transversale a inclus des participants âgés de 16 ans et plus, touchés par la guerre, collectés via les réseaux sociaux et les contacts personnels. Les données ont été analysées de manière descriptive et à l'aide d'analyses de corrélation.

Résultats. La majorité des répondants ont évalué leur santé mentale comme étant bonne ou satisfaisante. L'anxiété était l'émotion la plus répandue, en particulier chez les jeunes. Différents genres et groupes d'âge présentaient des niveaux variables d'émotions telles que la fatigue, la tranquillité, la colère et la tristesse. Les problèmes de sommeil et d'appétit étaient courants, avec des différences observées entre les groupes d'âge et de genre. De nombreux participants se sentaient coupables de ne pas en faire assez, et les mécanismes d'adaptation variaient selon les groupes d'âge. Les préoccupations en matière de santé mentale étaient moins importantes que les inquiétudes concernant la santé somatique. La stigmatisation et l'autostigmatisation liées à la santé mentale ont été identifiées, influençant l'intention de rechercher un soutien professionnel. L'accès aux services de santé mentale professionnels et les croyances à leur sujet variaient, en tenant compte des barrières linguistiques et de la disponibilité des informations. Une partie des répondants se sont montrés ouverts à des méthodes alternatives et à une aide psychologique future, bien que l'emplacement et la stigmatisation aient joué un rôle.

Conclusion. La guerre en Ukraine a eu un impact négatif sur la santé mentale, mais a également ouvert une "fenêtre" pour des changements d'attitude vis-à-vis de la santé mentale. Des mesures urgentes adaptées aux croyances et comportements des personnes sont nécessaires, notamment une augmentation de l'aide psychologique, la création de centres de traitement du TSPT et une formation spécifique des professionnels de la santé mentale. Les interventions numériques et les campagnes d'éducation peuvent réduire la stigmatisation et améliorer l'accès à ces services. Les efforts à long terme devraient se concentrer sur les décisions de gouvernance, les réglementations et la sensibilisation à la santé mentale dans l'éducation. Bien que certaines mesures puissent être reportées à l'après-guerre, il est crucial d'initier des changements fondamentaux dès maintenant.

Mots clés: Guerre en Ukraine, ESPT, stigmatisation, système de santé mentale en transition, changement de comportement, interventions numériques en santé mentale.

INTRODUCTION

Mental health state and self-care behaviors during the full-scale invasion

On the 24th of February 2022, the Russian federation initiated a full-scale invasion of the sovereign Ukrainian state, which was a major escalation of the Russian-Ukrainian war that started in 2014 by the annexation of Crimea, and Donbass conflict. Multiple murders of civilians, the bombing of cities, torturing and capturing prisoners, massive population displacement, and the refugee crisis - these are only a some of the major factors selected that have directly affected the population of the largest country in Europe by area for longer than a year as of writing this dissertation. Psychological stress and symptoms of mental illness are unavoidable consequences that reflect ongoing trauma for many Ukrainians. The stress and uncertainty of living in a conflict zone can cause or exacerbate mental health issues, including depression, anxiety, and post-traumatic stress disorder (PTSD) (1). According to the data of the national mental health program, at least 50% of civil Ukrainians who are located in the country have had a traumatic experience (as of autumn 2022) while before the full-scale invasion the percentage was 7% (2). Further research conducted by Gradus at the same time claims that 71% of respondents had recently felt stressed or had a strong feeling of anxiety, and about nearly half the population may need psychological help to cope with the war (3). Post-traumatic stress disorder and other mental disorders affect at least one in three refugees (4). Multiple acute effects of war, include but are not limited to death or injury of a friend or family member, damage to properties or other valuable assets, displacement of family members, lack of mental preparedness for disasters, and unpreparedness of medical services, are likely to adversely affect the mental health of Ukrainian people which is already apparent in existing data. This includes Ukrainian residents whether they are in the country, or whether they are not (5,6).

At the same time, the majority of people who need help don't receive it, furthermore, the majority are unaware of the importance of being aware of their own mental health (2). The reasons may be divided into acute issues (or directly war-related), and chronic. *Acute* issues include shortage of trained mental health professionals, lack of training for war-related mental health diagnoses, damage of infrastructure, inability to access familiar sites due to relocation or lack of financial resources; *chronic* - multidimensional problems that have created a predisposition and have persisted in the region for a long time prior to the war. One such predisposition is a culture of mental health stigma, which itself is mainly a consequence of the Soviet agenda, multiplied by the lack of awareness on basic mental health (MH) definitions; other factors that impact on intention to awareness and use MH aid are lack of evidence-based practices in the educational field for mental health professionals in training and regulations which distinguish which individuals are authorized to provide such type of services, and breeds distrust in health support and care providers in the area. Whats more, there are also factors that complicate access to mental health support facilities. This

may include poor infrastructure which is not entirely adapted for modern needs and acquired from Soviet times (including highly centralized planning which leads to difficulties for people in rural areas or conflict zones to access support), absence of proper regulations and ineffective governance prior to the war, which is related to the insufficient distribution of resources, and finally - a lack of financial resources to access psychological help in the general population. All of these create a vicious circle that prevents people from seeking aid on one side - and the inability to effectively cover the needs of the population on the other. This period of war has acutely exposed the problem within mental health systems in Ukraine which require rapid but also fundamental systematic changes. This requires solid decisions from the level of authorities, but also, just as importantly, openness to change in the society.

Mental health stigma

Mental health stigma is defined as social disapproval, labeling, and stereotyping of mental health and its related definitions within society (8). The literature identifies multiple types of mental health-related stigma; in the presented article, only self-stigma and public stigma will be the primary focus. Self-stigma refers to negative attitudes of an individual to their own health state, while public stigma refers to negative attitudes towards those with mental illnesses or the mental health phenomenon in general (11).

Back in Soviet times, psychiatry was used to threaten the population as one of the repression tools for the people who opposed the communist regime. Such people were treated as mentally ill while being subjected to long imprisonment in psychiatric hospitals. As a result, there is a tendency especially prevalent in older Ukrainian generations to avoid mental health topic - as they still remember the oppressive history of the psychiatric system of their era; getting psychological aid is seen as being mentally sick in people's minds since that time (10). Stigma is further intensified by a lack of understanding and awareness of the difference between psychology and psychiatry, various mental health state definitions and how they are managed (2). People struggle to distinguish the level of care needed for serious vs. chronic mental disorders and therefore assume that any diagnosis will result in hospitalization (9, 10). Since Ukraine has a history of political and social turmoil, it may have contributed to a lack of trust in institutions, including healthcare, similarly for the phenomena of mental health in general (23). This mistrust may make it harder for people to both be aware of their own mental health daily or seeking mental health treatment when needed. The rural Ukrainian population may be even more susceptible to this phenomenon due to the larger lack of mental health facilities, economic factors, cultural beliefs, greater lack of awareness on mental health, and stronger intersocial ties which help to disseminate certain beliefs within society (12).

Additional chronic factors that negatively affect intention to mental self-care and professional mental health support utilization

Cultural predisposals

In the meantime, even before the war Ukraine carried a high burden of mental disorders. Studies show that about 30% of Ukraine's people experienced mental disorders throughout their lives, and the prevalence of depression is particularly higher in Ukraine compared to other countries. Furthermore, mental disorders are the second leading cause of disability burden in terms of disability-adjusted life years (7). One of the widest reasons this can be potentially explained is overall culture.

Hofstede ranking

One of the tools to characterize cultural dimensions applied to the geographical context, and widely used in modern intercultural psychology is Geert Hofstede's cultural dimensions theory, which classically consists of such dimensions as power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance and short-/long-term orientation (13). This theory will be applied to characterize Ukrainian culture below.

1. Power distance. Ukraine scores relatively high on the power distance dimension, indicating a hierarchical society where power is distributed unequally. This is reflected in the strong influence of authority figures and the importance of status and rank. The score for Ukraine is 92, which is higher than the world average of 55.
2. Individualism: country scores relatively low on the individualism dimension, indicating a collectivist society where individuals are strongly tied to their family and community. The score for Ukraine is 25, which is lower than the world average of 43.
3. Masculinity: Ukraine scores relatively high on the masculinity dimension, indicating a society that values assertiveness, competition, and material success. This is reflected in the importance of status, achievement, and recognition. The score for Ukraine is 86, which is higher than the world average of 51.
4. Uncertainty avoidance: the country scores relatively high on the uncertainty avoidance dimension, indicating a society that is risk-averse and values stability, predictability, and rules. The score for Ukraine is 82, which is higher than the world average of 64.
5. Long-term orientation: Ukraine scores relatively low on the long-term orientation dimension, indicating a society that is more focused on the present and immediate results, rather than long-term planning and investment. This is reflected in the emphasis on quick results, practical solutions, and immediate gratification. The score for Ukraine is 25, which is lower than the world average of 49.

Overall, Ukrainian society can be described as having a high influence of authorities or figures with high social authority, strong ties to the family and community and their opinion,

importance of status and recognition, values stability (thus less open to changes) and has an emphasis on rather quick results. These values influence many aspects of Ukrainian culture, including social relationships, work culture, and attitudes towards authority and rules and make a certain impact on their mental health self-care attitudes and mental health system utilization (14).

Gender roles

In Ukraine, traditional gender roles often emphasize stoicism and self-reliance among men. Seeking help for mental health concerns may be viewed as a sign of weakness or a departure from traditional masculinity. Mental illness is sometimes viewed as a personal weakness or moral failing rather than a medical condition. This belief, again, can be particularly strong among men, who may feel a pressure to uphold traditional gender roles and avoid anything that may be viewed as a weakness. In addition, men in Ukraine may fear discrimination or negative consequences if they disclose their mental health concerns. This fear may be particularly strong in certain professions, such as the military (and other fields where demonstration of physical and moral strength is very important), where seeking help for mental health concerns may be viewed as a sign of weakness or disqualify them from certain positions (15).

Generation theory

While mental health stigma affects individuals of all ages in Ukraine, certain generations may be more susceptible to it than others, such as people of older generations in Ukraine. This generational divide may be influenced by a number of factors (16). For example, older generations may have grown up during a time when mental illness was even more stigmatized than it is today and may have been exposed to negative stereotypes and misconceptions about mental health. Additionally, older generations may be more likely to rely on traditional or cultural beliefs about mental illness, which may be more stigmatizing than medical or scientific approaches. In contrast, younger generations in Ukraine may have been exposed to more information about mental health and the importance of seeking treatment. They may be more likely to have friends or family members who have struggled with mental health issues, which can help to reduce stigma through personal connections (17).

To elaborate further, there are certain characteristics of each generation present in contemporary Ukraine (16, 17, 18):

1. Silent Generation (born between 1928-1945). This generation came of age during the Soviet era and experienced the hardships of World War II as well as the rebuilding of the country afterwards. They were extremely exposed to collectivism and sacrifice of personal interests for the benefit of society. This generation in Ukraine may be more susceptible to mental health stigma due to cultural beliefs and values, such as

collectivism, around mental illness circulated in the USSR. This generation is more likely to have the least trust of mental health professionals because of reports of negative encounters from their community members. In addition, for this generation, mental health issues are viewed as a personal weakness or moral failing, which can create shame and stigma around seeking help.

2. Baby Boomers (born between 1946-1964) and
3. Generation X (born between 1965-1980) - grew up during the Soviet Union period and was exposed to its values at an early age. They also experienced the economic and social changes and difficulties that came with Ukrainian independence in the 1990s., as well as a lack of understanding and resources available during their formative years. Similarily as with the Silent Generation these two may also be influenced by Soviet-era beliefs and attitudes toward mental health in their time with high trust to authorities, high power distance, collectivism and conservatism in making rapid changes.
4. Millennials (born between 1981-1996), came of age during the digital revolution and have been shaped by globalization and the growing influence of Western culture.
5. Generation Z (born between 1997-2012) - who are the first to have grown up entirely in the digital age and are highly connected through technology, they are less susceptible to mental health stigma due to having the least trust of well-known authorities, while also having various sources available to validate the information.

It's important to note that mental health stigma can affect individuals of all generations, and addressing it will require a multifaceted approach that takes into account the unique cultural and historical factors that contribute to it. In the present article, our division of the age groups is older vs younger generations due to the limited number of participants. (18).

Gaps in training among mental health support professionals

There are approximately 90 universities in Ukraine that offer a complete psychology education up to the Master's degree level, to work as a psychologist, one is required to have at least a Bachelor's diploma in Psychology (19). According to data (20), more than 50% of curricula do not have specific titles and are defined simply as 'Psychology', for instance in pedagogic universities or economic universities. Such professionals are not obliged to undergo the same accreditation procedures as their colleagues from medical universities do, however they are not prohibited from running their own private practice. A common system of continuing professional development (CPD) for all psychology specialties is also lacking; instead, each area's CPD requirements are specific. For instance, there are specific steps that medical psychologists must take in order to advance in their education and careers. Medical psychologists must successfully finish an internship as part of their degree in order to start their careers. Additionally, every five years, they must demonstrate their qualifications and undertake additional professional courses. However, after earning a

Bachelor's or Master's degree, other psychological sub-specialties are not necessary to take any extra steps. Additionally, there is no governmental agency that controls the guidelines for psychologists' supervision, and supervision arrangements are not a component of any government programs. It is a required component of training for counseling psychology and psychotherapy training, but each association has its own supervision standards which may differ in professional psychotherapeutic associations from one to another. However, currently there are ongoing efforts to promote supervision among other associations and governmental bodies. The Ministry of Veterans and the Ministry of Education and Science are making efforts in this direction by attempting to put in place supervision for psychologists working with veterans and educational psychologists (19).

Due to this imperfection and inconsistency in regulations, there are numerous low-qualified professionals which only contributes to a lack of trust in the mental health support and care system. This mistrust may make it harder for people to seek mental health aid and could further contribute to stigma (21).

Lack of efficient governance regulations which distinguish those who are authorized to give MH support

In Ukraine, regulation of the sphere of psychological/psychotherapeutic assistance differs from international standards. There is an absence of universal regulations in the field of mental health support education in Ukraine. For instance, psychotherapy, according to the Ukrainian Association of Cognitive-Behavioral Therapy (22), regulation of the sphere of psychotherapeutic assistance extremely differs from international standards, mostly at such levels:

a) who is able to provide psychotherapeutic assistance - in Western countries, these are mainly psychologists with additional specialized education, in Ukraine, according to the law, it is exclusively psychotherapists, but in reality, it is also mostly psychologists under the cover of psychological counseling, etc.;

b) types of help that can be provided by specialists - in Western countries, certain specialists know certain methods (narrow approach) while in Ukraine, a psychotherapist is trained in a "little bit of everything" program, which in reality may mean a lack of competence to provide any type of therapy at the proper level;

c) adherence to protocols (in Western countries, specific types of psychotherapeutic care are provided strictly according to protocols, while in Ukraine it is mostly guided less by protocols but rather by theoretical inclinations or "sympathies" of a specialist to a particular approach;

d) quality regulation of psychotherapeutic care (in Western countries it is regulated strictly by the accreditation/reaccreditation, in Ukraine certain sub-specialties within psychology (in particular graduates of psychology from pedagogic universities) don't need to undergo accreditation (as has been discussed previously);

e) control over accreditation and competence standards, including quality of educational programs (in Western countries, this is mainly the responsibility of professional associations), etc. (22).

Lack of education on MH within the general population

There is a lack of mental health awareness in Ukrainian public primary education. In general, mental health education and awareness campaigns both about mental self-care and getting professional aid are not widely available in Ukraine. While some separate organizations and advocacy groups are working to increase awareness and reduce stigma, many people remain uninformed about mental health issues and how to seek help (23). However, during the full-scale invasion, this situation started to change. In particular, there was recently a start to the first national-wide mental health program (campaign) “How are you?” led by First Lady Olena Zelenska (2).

Additional chronic factors that negatively affect beliefs of access to professional mental health support

Due to the *centralized post-Soviet infrastructure*, access to mental health support in Ukraine can be limited, particularly in areas that have a huge rural population : amount of facilities and professionals in such areas is often reduced. Also, one of the barriers to access mental health support and care is *lack of finances* within general population taking into account high out-of-pocket payments for medical care. Unfortunately, Ukraine has one of Europe's least well-resourced and *underfunded mental health systems*, receiving only 3% of the nation's health budget as opposed to 13% in the UK and 18% in Denmark (24). Instead of a more progressive government, the legacy of a post-Soviet system of underinvestment and containment in inadequately staffed and administered institutions continues to have an impact on the provision of mental health services in Ukraine. There are grave worries about systemic corruption in Ukraine's healthcare system, as there is evidence of wrongdoing and coordination with pharmaceutical firms (25).

Query for change current mental health attitudes and practices

Ukrainian society requires extreme changes within mental health attitudes to the mental health of any individual similar to the professional mental health support facilities, which war has exposed more prominently than ever. To implement any changes it is necessary to know how well society is prepared to accept them in the most effective way and to create a solid ground for high burden prevention of various psychological issues and psychiatric disorders caused but not only limited by war in the future (26).

Individuals and communities in any nation, including Ukraine, can have different attitudes and levels of receptivity toward mental self-care and mental health support utilization

principles and procedures. It is important to note, nevertheless, that there has been a recent global movement towards acknowledging the value of mental health and reducing the stigma attached to mental health disorders. Similar to many other countries, there is a growing awareness of mental health concerns and a greater emphasis on addressing them in Ukraine, which should only increase (26). One of the promising directions in the field - use of digital interventions (2, 40, 42).

In this work, which is a primary part of the larger study which aims to launch certain interventions including digital addressing strengthening of the mental health system in Ukraine, a so-called needs assessment of the population of interest is performed to answer the main determinants of people's beliefs and practices around mental health to understand better how and what may be changed to improve current situation (from the actions which can be controlled).

It is needed to clearly define that the attention in the current study will be equally spread out between both awareness and attention to one's own mental health in general along with utilization of mental health support facilities. We mainly discuss psychological support mostly omitting psychiatric aid to answer the needs of the majority of the population.

OBJECTIVES

The aim of the project was to answer the following 5 questions among participants through a convenient sample.

1) **Mental health state and self-care behaviors during the full-scale invasion**

What is the prevalence total and in all age/gender groups of:

- people in a bad mental health state at the moment of undertaking the questionnaire;
- the most and least prevalent emotions;
- the changes in social life after the beginning of the full-scale invasion (prevalence of increased desire to be among close like-minded people, the prevalence of people who became more closed);
- participants having various PTSD symptoms;
- various methods of coping with stress.

What is the likelihood of having a good mental health state in various groups of convenient participants sample.

2) **Stigma and self-stigma**

What is the prevalence total and in all age/gender groups of those who:

- prıorıtize mental health-related worries among all health-related worries;
- feel difficulties with sharing certain issues with their doctor;
- in the question of ever seeking mental health support answer “No, never, and am not planning to”;
- express importance of mental health for overall functioning;
- started to pay more attention to their mental health (after the extreme stress);

- considered the current time as not “right” to pay more attention to their mental health;
- see mental health as a difficult topic to talk about in Ukrainian society.

What is the likelihood of having mental health stigma (not counting any health-related topic including mental health as difficult to arise in Ukrainian society) and self-stigma (feel difficulties in sharing sensitive information with their doctor) in various groups of convenient participants sample.

3) Intention to professional mental health support utilization

What is the prevalence total and in all age/gender groups of those who:

- never sought any kind of mental health support services (including psychologısts, psychiatrists and psychotherapists);
- go to talk wıth a specıalist among all methods to distruct during the full-scale invasion;
- find it difficult whether to make a prımary doctor visitor secondary (and later) visits.

What is the likelihood to have the intention to use mental health support (to talk with a specialist) in various groups of convenient participants sample.

4) Beliefs on access to professional mental health support

What is the prevalence total and in all age/gender groups of those who:

- find it easy to get psychological help when needed;
- finds getting psychological help complicated or there is not enough information;
- have language barrier (question intended mainly for refugees).

What is the likelihood of those who find access to MH support easy in various groups of convenient participants sample.

5) Query to change current mental health attitudes and practices

What is the prevalence total and in all age/gender groups of:

- people who show that they are open for alternative methods to deal with stress than they have now;
- respondents who are open to get psychological help in the future

What is the likelihood of those who are open to utilizing alternative methods (such as mental health support, going to the specialist) for dealing with stress in the future in various groups of convenient participants sample.

METHODS

Study design

This research is based on primary data collection based on an online questionnaire. This study is a primary part of of a larger project on the mental health of people living in Ukraine (including those having recently left Ukraine due to the full-scale invasion) of which the overall aim is to address urgent short- and also strategic long-term needs dealing with mental health support and care system in Ukraine. The project narrative was developed

within the SOLOMIYA program operating in Charité hospital (Berlin, Germany) starting from February 2023 with the desired outcome of intervention creation tailored for specific population needs, in particular, psycho-educational/-interventional mobile App development along with using behavioral economics tools to nudge people to its usage. The next and the main study will be performed after the App will be launched and acquire users. Obtained results of the current study will be used to inform the larger project to fit the App content according to the specific needs among Ukrainian persons affected by war. An exploratory cross-sectional study design was performed to see the mental health state characteristics and attitudes of Ukrainians during the full-scale invasion.

To fit into the context and to meet all the needs of the study the questionnaire based on 5 blocks of questions was designed partly based on existing validated questionnaires for stigma (Community Attitudes Toward the Mentally Ill (CAMI)) (27) and mental health (General Health Questionnaire (GHQ-28) (28), Depression, Anxiety, and Stress (DASS)-21 item scale; post-traumatic stress symptoms by the Impact of Event Scale-Revised (IES-R) and coping strategies by the Coping Orientation to Problems Experienced Inventory (Brief-COPE)). It consisted of 5 main thematic groups of questions phrased in the Ukrainian language such as mental health state, mental health stigma and self-stigma, intention to use mental health support, attitudes on access to MH support and openness to the change in the context of the study. It is needed to detail that MH stigma (along with self-stigma) was separated into different blocks as it may have a direct or indirect impact on all the rest of the thematic blocks taken separately or together.

Ethics

Due to the sensitivity of the topic the questionnaire was constructed in a respectful way for the participants. Part of the questions were optional so that those who would find it too sensitive to give a response were able to skip it and move forward. In some relevant multi-answer questions there was a possibility to give their own answer which fits the best if participants felt that their needs are not met by the provided options. All people who participated in the study were obliged to give an agreement to the use of the information provided to use in the current study. All data gathered is completely confidential, no personal information such as their precise location to an email address had been asked to be provided. The current study underwent an ethics review and approval from Maastricht University, Netherlands.

Data collection

The current study is a cross-sectional survey in a convenience sample. Between March and April, people were proposed to undergo the questionnaire via social media channels (Telegram, Facebook) and personal contacts. Inclusion criteria for this study were being

aged 16 years or older, being affected by war in- or outside of the country, belonging to the civil population, and being capable of completing the survey in Ukrainian. The data was available for 334 respondents, however 2 were excluded later due to not meeting the inclusion criteria. All people who participated were >16 years old. and gave consent to the participation within the form as one of the questions, without a positive answer it was not possible to proceed. The age distribution was wide and included participants from 12 age groups starting from the group 16-25 y.o. to more than 70 years old which later was adjusted to 2 groups as younger or older for the sake of the study and lack of participants in older groups. Data was gathered automatically while users undergo the questionnaire in Google Forms for 2 months (01/03 - 25/04). Some questions had an option of multiple choice and/or optional answering.

Data analysis

In the present analysis participants aged 16 years old and older were included. To access people's MH state, beliefs and practices we identified 5 themes, then created and sorted variables accordingly. Some variables were created from open questions, in this case, some assigned keywords based on the free text responses were used. During this process, all responses to a given question were listed and relevant themes were identified (e.g., “sorrow” and “anger” as experienced emotions). Descriptive and correlational analysis was performed. To perform correlational analysis, certain questions were transformed into binary variables. State of “good” mental health state was defined as grade 4 or 5 on a Likert scale while giving 1, 2, 3 for “bad” (although this feeling is subjective as described into the literature (37). We conducted descriptive analyses on the frequency of different themes, stratifying by age (younger vs older), gender, location (in or out of Ukraine), stability situation (stable vs unstable). We analyzed the association between participants' characteristics and 5 determinants defined by the aims of the study. Logistic regression was applied, both bivariate and multivariate analysis. Based on the hypothesis that gender and age (more or less than 26 years old) may show different results in the stigma section, an additional separate model was built including combined variables distinguishing younger women, younger men, older women and older men. Odds ratios, 95%-confidence intervals and exact p-values are shown. All analyses were carried out using Google Sheets with XLMiner Analysis ToolPak extension. Data is available as supporting material.

RESULTS

Study population

Data was gathered from 334 respondents aged 16 years or older, 2 from this number were excluded for not meeting the inclusion criteria. Male and female respondents were

subdivided into 2 age groups - less than 26 years old were considered as younger and more than 26 y.o. considered as older. There were 181 women (54.5% of total sample) and 52 men (15.7%) aged 16–26 years; 82 women (24.7%) and 17 men (5.1%) aged 26> years (Table 1). 81.9% of respondents were located in Ukraine at the moment of undergoing the questionnaire with 44.9% of young and 17.8% of older women group; 14.8% and 4.5% for men respectively. Most people (98.3%) lived in Ukraine before the full-scale invasion. 87.3% of respondents have a stable situation at the moment of undergoing the questionnaire.

Table 1: Characteristics of the study population

	Characteristics	Total	Women 16-25 yrs (54.5%)	Men 16-25 yrs (15.7%)	Women 26> yrs (24.7%)	Men 26> yrs (5.1%)
1	**Country of living at the moment of undergoing the questionnaire**	N = 332				
	Ukraine	272 (81.9)	149 (44.9)	49 (14.8)	59 (17.8)	15 (4.5)
	Outside of Ukraine	60 (18.1)	32 (9.6)	3 (0.9)	23 (6.9)	2 (0.6)
2	**Country of living before the full-scale invasion**	N = 286				
	Ukraine	281 (98.3)	147 (51.4)	39 (13.6)	79 (27.6)	16 (5.6)
	Other	5 (1.7)	3 (1)	0	2 (0.7)	0
3	**How stable is overall situation (housing, environment, routine, etc.)**	N = 134				
	Relatively stable	117 (87.3)	69 (51.5)	12 (9)	29 (21.6)	7 (5.2)
	Unstable	17 (12.7)	6 (4.5)	0	9 (6.7)	2 (1.5)

Mental health state and mental self-care behaviors

The majority of respondents evaluated their mental health state as fine (3 on a Likert scale, 48%) or good (4 on a Likert scale, 28.4%) at the moment of undergoing the questionnaire (March-April 2023) (Table 2). The prevalence of bad mental health state was lower among men than women (9.6% for younger and 11.9% for older men and 20.1% for younger women). The most prevalent emotion for all respondents in all age groups was anxiety (Fig.1). Younger age groups were more prone to apathy than older ones. Younger men showed the highest levels of fatigue and peace but also anger in comparison to other groups. Older men demonstrated the lowest levels of apathy, sadness and hope and the highest levels of despaır, tension and irritability in comparison to other groups. Older women show the lowest level of peace and fatigue in comparison to other groups. Older groups

showed lower levels of ardor and higher levels of irritability and uncertainty in comparison to younger groups. All groups demonstrated a low level of fear.

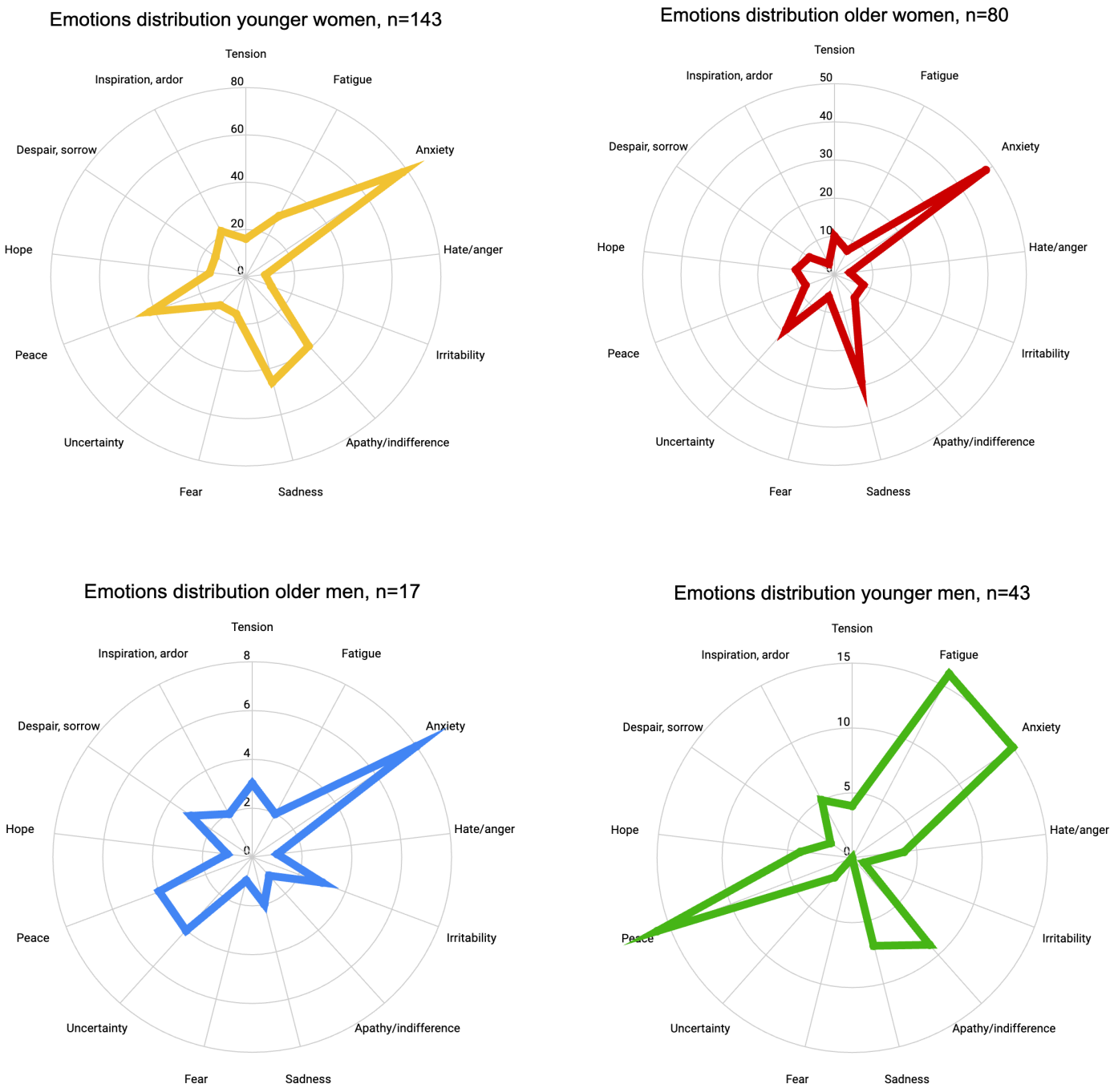

Figure 1. Emotions distribution for different study groups, N=332

When it comes to changes in social life, the majority of people (40.4%) show an increased desire to be among close like-minded people. Almost one-third (26.8%) of the respondents became more closed being in first place in the older women group (and having 'more desire to be among like-minded people' as the second most chosen option).

48.1% of respondents had intrusive thoughts and 11.2% have it in combination with somatic symptoms likegastrointestinal disorders or headache with the highest in the young women group. However, both groups of men demonstrate the absence of intrusive thoughts more

often with older men being more absolute. Problems with sleep are present in 42.1% of people and another one third (29.8%) have problems with both sleep and appetite. Young men seem the most resistant for having sleep and apetite issues while in older age groups the situation crucially different: 53.1% females and 68.8% males have problems with sleep; in addition, in older female group only 13.6% did not have any problems with sleep and appetite at all. 42% of respondents reproach themselves for not doing enough with older males having this feeling the highest (66.7%) among all age and gender groups. Clear generational (age-dependent) patterns are seen in the question of methods which help people to cope with stress (Fig.2). In younger groups, the highest numbers are given to procrastination, music/art and talk with a close person respectively while in older groups talk with a close person comes in first place having procrastination and volunteering after. Importantly, talk with a specialist is the option with the smallest amount of responses in all groups being the worst in male groups and being completely absent in older male groups. Among all, this option is the most prevalent among older females. In correlation analysis no associations were found in a presented sample of participants.

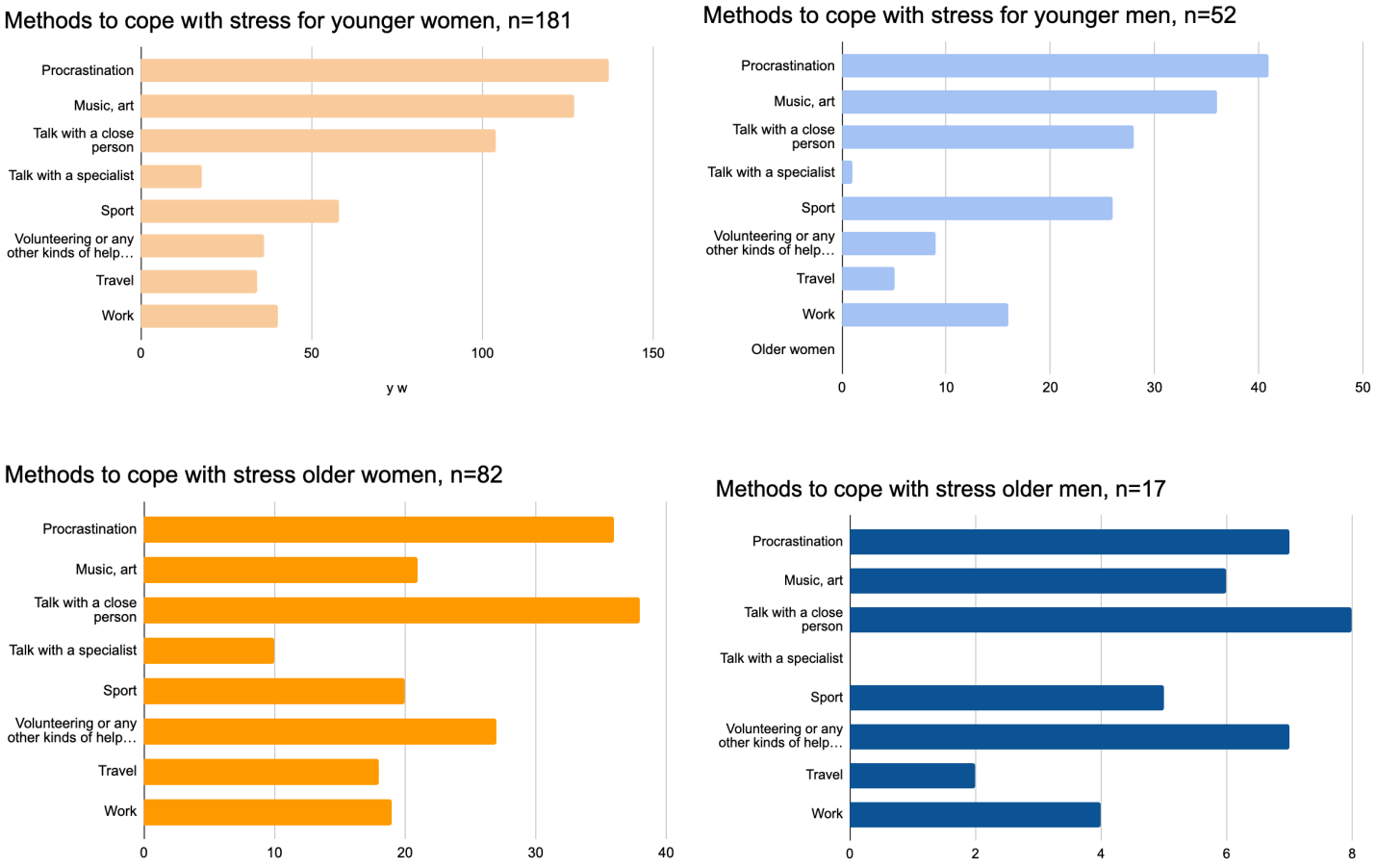

Figure 2. Methods to cope with stress in different study groups, N=332

Stigma and self-stigma

Mental health-related worries are in smaller priority than the other health-related (somatic) health worries for all the age groups (54.9% total) except younger women, the biggest

radicalism ın absence of mental health related worries is demonstrated by older women (25% for mental health- and 75% for other health-related worries) (table 2). The same issue is supported by correlation analysis - older females are 0.29 times more likely (CI 0.7-0.5, p=0.00001) and younger females are 2.82 times less likely to have mental health stigma (to think that mental health is not a difficult topic to rise in a Ukrainian society) (CI 1.66-4.8, p=0.0001) (Table 3b). Younger people are 3.11 times (CI 1.83-5.3, p=0.00003) more likely don`t have mental health stıgma in bivariable analysis. In multivariable analysis this difference is 2.7 times (CI 1.15-6.31, p=0.022). At the same time, the situation is reverse with self-stigma: younger people have self-stigma (in particular difficulties with sharing sensitive information) in 0.38 times more often than older (CI 0.15-0.94, p=0.035), this is especially the case for younger females (in 0.56 times more (CI 0.33-0.94, p=0.03)). Overall, almost a quarter of partıcıpants (39.8%) feel dıfficultıes in sharing certain issues with their doctor. Levels of self-stigma also depend on the stability: those who are in stable situation are 3.96 times less likely to be self-stıgmatızed against mental health and share even the most sensitive information with their doctor (CI 1.36-11.54, p=0.012) (5.84 times less in multivariable analysis (CI 1.73-19.65, p=0.004)). In the question of ever seeking mental health support, 21.4% answered “No, never, and am not planning to” (Fig.5) with at least two higher differences in older groups (30.9% for women and 43.8% for men). The importance of mental health for overall functıonıng has been shown by two thirds (62.1%) of respondents.

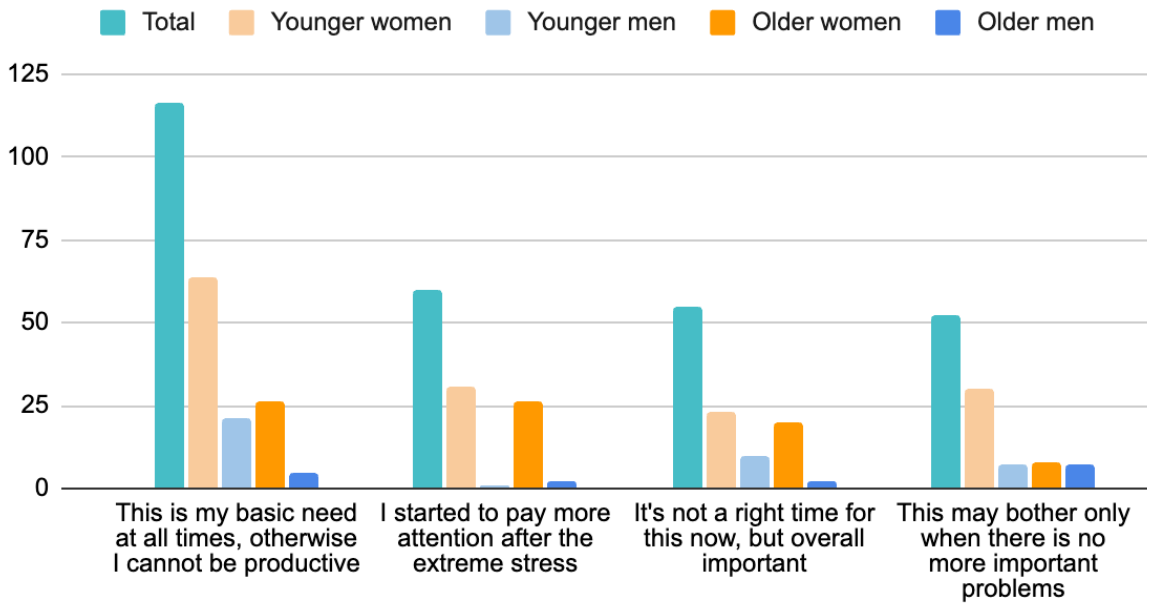

Figure 3. Relevance of mental health during the full-scale invasion, total (N=283)

Women of both age groups share similar alike results while in the older men group the ratıo of importance is opposite to overall results (ımportant for 43.8% of respondents) (Fig.3). 21.2% of people started to pay more attention to their mental health (after the extreme stress) being especially significant in female groups; in contrast, 19.4% considered the current time as not “right” to pay more attention to their mental health young males havıng the hıghest percentage (25.6%). Among all participants, 23% don’t see any health-related

topics as difficult to talk in Ukrainian society (Fig.4) with the twice overweight in older women (41.5%) and older men coming second (23.5%). Although, among people who see sensitive health topics to talk about the biggest importance was given to mental health in all age groups with older men being the most confident. The second place is given to HIV, the last went to tuberculosis.

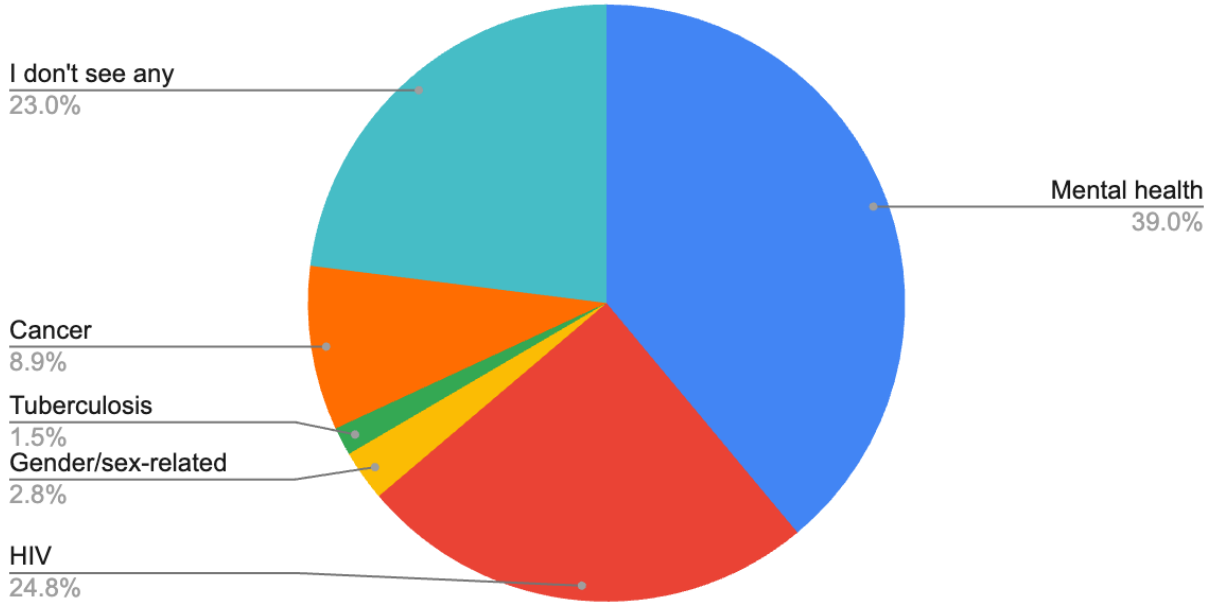

Figure 4. Hard medical-related topics to rise in Ukrainian society, total (N=332)

Intention to professional mental health support utilisation

Intention to use mental health support (to talk with a specialist) in females is 8.14 times higher than in males (CI 1.09-60.9, p=0.041) (Table 3a). It also depends on respondents' location - the intention is 0.32 lower in people who are located in Ukraine (CI 0.14-0.72, p=0.006) in comparison with those who left the country. 66.2% of responded people never sought mental health support services (including psychologists, psychiatrists and psychotherapists) with the highest results among older men.

Among all methods to distruct during the full-scale invasion only 8.7% of people go to talk with a specialist with a clear gender difference (1.9% and 0 for younger and older men respectively). At the same when asking about whether itis more difficult to make a primary doctor visit or secondary (and later) visits the distribution is almost equal with a slight overweight for primary visits in total (58% vs 42%) and in all age groups with equal distribution 1:1 in younger men. Finally, people who don't have self-mental health stigma and are able to share the most sensitive information with their healthcare provider are 2.79 times more intended to use mental health support (go to the specialist) (CI 1.1-7.04, p=0.03) (2.61 times more in multivariable analysis (CI 1.02-6.67, p=0.045)). 3.2% of respondents show distrust to specialists' qualification, the majority being from older generation groups.

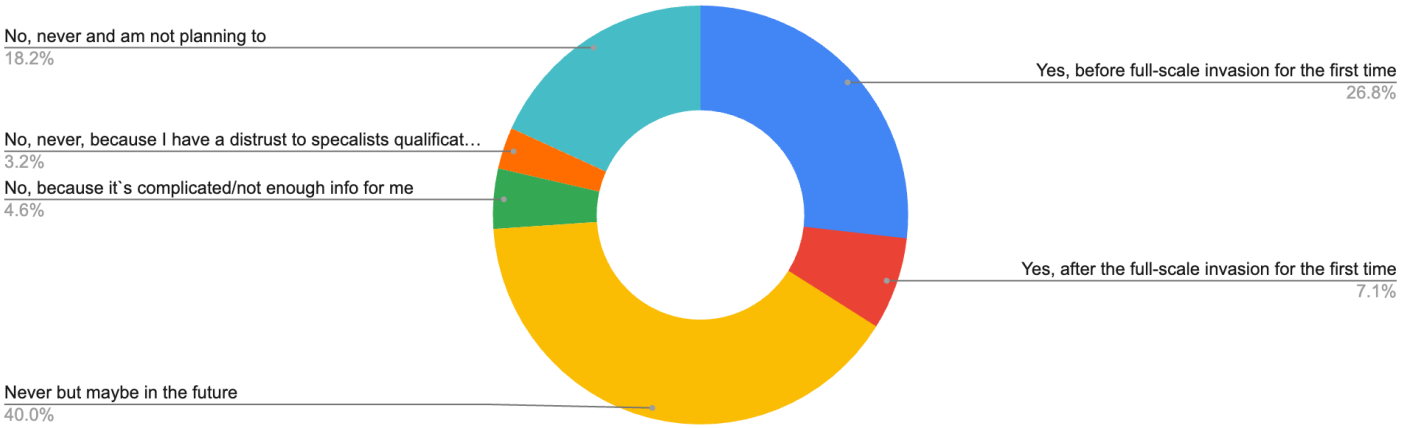

Figure 5. Whether participant ever used any kind of mental health support, total (N=280)

Beliefs on access to professional mental health support

When it comes to the ease of access, women show slightly higher belief in ease of getting psychological help when needed; in total however this difference decreases to being 1:1. Language barrier (question intended for mainly refugees) have 14.2% of respondents showing slightly higher numbers in older groups and surprisingly not different by gender. 4.6% of people believe that it is complicated or there is not enough information to get psychological help with the higher prevalence among older men (12.5%) and younger men coming after (7.7%).

Talking on the impact of stigma on access: for people who don't have self-mental health stigma (difficulties of sharing sensitive information with their doctor) its 1.91 easier to access MH support according to their beliefs (CI 1.22-2.97, p=0.004) (and 1.99 easier in multivariable analysis (CI 1.27-3.15, p=0.003)). Surprisingly, in our study, the location did not impact people's beliefs in this block.

Query to change current mental health attitudes and practices

29.5% of people indicated that they are open to alternative methods to deal with stress than they have now. 40% of respondents are open to getting psychological help in the future with slightly less openness in older male/female groups. The location also plays a role here: people who are located in Ukraine are 0.42 times less open for change (for utilizing an alternative ways (such as mental health support, go to the specialist) of dealing with stress in the future) (CI 0.24-0.74, p=0.003) (0.38 times less in multivariable analysis (CI 0.18-0.82, p=0.014)). Stigma impact: people who don't have self-MH stigma are also 1.91 times more open to change current coping-with-stress behaviors (CI 1.22-2.97, p=0.004). Interestingly, in multivariable analysis adjusted by stigma, location, gender and age variables people who don’t have self-MH stigma are becoming less open to change (review their current methods to cope with stress). Similarly, in a bivariate analysis regarding stigma there was found an

association between the absence of stıgma and 0.62 times less probability to be open for change in current behaviors regarding mental health.

DISCUSSION

In this cross-sectional study accessing mental health determinants among young Ukrainian people and adolescents, we found a relatively wide range of information in regards to the mental health state, reported knowledge, beliefs and practices people are guided in regards to the own mental health during wartime along with mental health system utilization in Ukraine. The current study is an initial part of a larger project aiming to create a digital intervention as a behavior change tool to improve people's stress levels and sleep, along with psychoeducation (which in turn is one of the key components to face MH stigma present in society). The goal of the current study based on the questionnaire was to undergo a pre-assessment to fit the future intervention to current populational needs and is an essential part to include in the overall project. Due to the extra difficulties that occurred during the intervention development it was postponed and did not fit to the submission deadline of the current paper, however will be published as a separate work in the future.

Mental health state and self-care behaviors

According to the current study results, although most respondents were located in Ukraine, a country with an ongoing war and a lot of stressors that normally people do not usually face, the majority evaluated their current mental health state as rather good, which demonstrates *strong self-resistance* which is most likely supported or caused by the agenda within the social environment: greater national unity during crises may have facilitated the emergence of effective coping mechanisms over time and is supported by the literature (29, 30). This statement is also supported by the fact that when accessing the spectrum of emotions, fear demonstrates the lowest levels in all age groups. Adding the timeframe context, at the moment of undergoing the questionnaire (March-April 2023 since February 2022), the invasion lasted for overa year, which could mean that *people`s threshold level for stressors impacts on the MH most likely has increased,* which may be one of the mechanisms of adaptation to traumatic events (31, 32). It is also needs to be detailed that for overall (non-frontline) Ukrainian territory period of March-April 2023 was less intense in terms of active war events, therefore the spectrum of emotions may be strongly reflected by this fact as well. *Men demonstrate the biggest resistance (especially the older group) while younger women are the most vulnerable* - this gender difference may be caused by, however, strong gender roles which require men to be strong but not necessarily represent their actual feelings. Based on the *emotional spectrum assessment, there is a clear age difference*: while the older generation is more concerned about the future and practical issues demonstrating uncertainty and irritability, the younger generation is tend to have more

apathy but also ardor. These are also reflected in the methods of coping with stress: younger people rather dive into social media, music or art (which may be defined to a certain degree as escapism) while older generations are more people of “action” and the importance of close social bonds in controversy to the individualistic approach of the younger generation. *War also brought changes into the social life:* it made people concentrate more on a close like-minded social environment than anything else (30). The resistance described above sadly has its price: while living under the war for more than a year, various *PTSD signs* (intrusive thoughts, intrusive thoughts in combination with somatic symptoms, problems with sleep, problems with appetite/digestion) *are reported in almost half of the participants* with women being more vulnerable, which is clearly supported by the literature (33)**.** At the same time, problems with sleep affect the older generation more than the other participant groups. One extra stressor which is related to the war indirectly and adds to people's mental health state (and also goes in line with PTSD symptoms) is survivor guilt. *Almost half of the respondents reproach themselves for not doing enough* to bring the end of war closer and being not ‘brave enough’, which is particularly the case in older men. This is an unfortunately predictable result as all men who underwent the questionnaire were civil citizens, so the feeling of guilt is may likely becoming from the subconcious self-comparison with people of the same age and sex being on the frontline. This also might be one of the stimulators of higher support-giving strategies as a method to cope with stress in older generations (30, 34).

MH stigma and self-stigma

Our findings are in line with previous studies that have reported on the fact that *Ukrainian society overall still shows high levels of prejudice and stigma in regard to mental health (10, 11, 23).* As expected, older generations are more prone to this issue than younger generations (especially women) . However, *the situation is contrary with self-stigma:* people of a younger age are more afraid to share sensitive information with their healthcare provider (38), which overall may be one of the causes of low adherence to mental health support and care in Ukraine in general - as both - younger and older generations have various types of stigma which prevent them to access it. An interesting finding is connected to the stability of life individuals have: *the more stability is acquired, the less the probability to have mental health stigma* (recognize MH as a difficult topic to raise in Ukrainian society). Most likely the reason is that parameter of stability comes along with the level of education (which means better awareness of mental health), financial status (which gives the ability to pay for the visit), etc.

Intention to professional mental health support utilization

Paradoxically, *the war brought some positive changes to the level of attention people are ready to give to their own mental health*: around one-fifth of respondents claimed they started to pay more attention to it after “big stress”. Although, another one-fifth claims that the current (war)time is not appropriate to pay attention to mental health, which only supports the presence of stigma and the need for multidimensional changes in this direction. Despite the fact that the majority recognizes mental health as “rather important” for their overall functioning, the actual discussion with a specialist takes the least amount of responses in multiple choice question on methods to cope with stress. Therefore the paradox is that *people understand the need but are still blocked at a stage of action* to attend a mental health professional (35, 36). It is promising to see that people who did not utilize mental health support are open to do so in the future. Both facts give a grounded space for nudging in this area. Again, *10% of respondents were pushed to start using MH support due to the war.* Interestingly, there is a *clear gender difference* in intentions to use mental health support among Ukrainians with women 8 times more open to do so rather than men. In addition, people are more likely to use MH facilities if they are located outside of Ukraine which leads to the inference that *there is a distrust not to the mental health system as a whole, but to the Ukrainian system specifically (35, 37, 39).* In particular, *there is a space for distrust to the specialists' qualification, shown especially by the older generations.*

When it comes to **ease of access to mental health support**, women show slightly higher belief in its accessibility while older men demonstrate the highest levels of having the opinion that this is difficult or they are lacking information on how to get it. Our study also shows that it is almost twice as easy to share sensitive information when your beliefs in access are high.

Query to change current mental health attitudes and practices

There are quite promising numbers in the field of the openness to review current mental health behaviors: around 30% of respondents of all age groups are expressing their need for alternative ways to cope with stress than they have now and 40% are open to change their current attitudes and go to the mental health specialist in the future with the younger generation being more open to this which is supported by the literature (38). People who are located in Ukraine are less open to change their current stress-coping techniques, which brings us back to the statement of having distrust specifically in the Ukrainian mental health system, which gives hope that since this kind of stigma is based on rational reasons, it is therefore easier to cope with.

CONCLUSION / IMPLICATIONS

To summarise, the need to pay more attention to the field of mental health in Ukraine is undeniable; the war impacts people's mental health in a logically negative way, but it also changes approaches in a special way taking into account cultural context, stimulating people to pay more attention to mental health, and tight social bonds. It also shows that the impact of mental health stigma which is predictably taking more space in older generations, is more related to rational grounded reasons like lack of information or distrust in health support and care providers etc, which is therefore easier to cope with by implementing according measures (to improve the educational system in the field of psychology and to create an updated unified selection measures system for accreditation in the field of psychology in Ukraine). In other words, the war, being an enormous stressor and causing an appearance of extra signs of mental health disorders is also creating “an open window” for changes and to the certain way an ability to reset old well established beliefs. There should be urgent measures to answer such issues, for instance, increased amount of psychological aid in a place, awareness of people on the hotlines of urgent psychological aid, PTSD centers creation and training of MH professionals specifically in this field (41). Digital mental health interventions, which have the ability to reach many people at once in their daily lives, are one another promising option in the field, which is relatively easy to -achieve as well. In addition, these treatments can be used to screen and identify people who might need more advanced human care (30, 42). One of such interventions is App with psychoeducational and psychointerventional content created by specialists of psychiatry and affective neuroscience department of Charité hospital, Germany, which is larger part of the present study and which is using the information of the presented study and will be launched in nearest decades.

At the same time, more long-term oriented measures are needed. There may be the case for governance decisions which may improve regulations of mental health support and care providers based on the experience of other countries primarily by strict definition and limit on who is able to provide such services; decisions in the field of psychological education; inclusion of mental health awareness into primary education) (39). To reduce stigma, stimulate (therefore nudge) to pay more attention to mental health and increase the intention and adherence of the general population to MH support facilities it is certainly needed to provide fundamental behavior change in the field. This may include education and awareness campaigns that will give access to accurate information about mental health (including main disorders such as depression or PTSD), the benefits of seeking treatment when needed and show that there should not be any shame while utilizing it. Not only this, people need to be taught more on practical issues, for example how exactly the appointment with the specialist is performed, what are the outcomes depending on the situation etc. It is necessary to pay attention to both initiation and adherence to mental health support usage, as the results of the questionnaire showed (40). Finally, this should also be adjusted to the financial question as people often prioritize their mental health less due to the lack of

financial resources (37). Another instrument in nudging to mental health support utilization and simply paying more attention to one's own mental health is using digitalization, gamification tools etc. (42). This is especially relevant in a condition with a distrust to local spacialists and lack of access to physical mental health support sites. It may also help to make mental healthcare as a habit and understand its importance for overall functioning (psychoeducation).

There are also certainly some measures which may be postponed for the postwar time, mainly related to the increase of access (since increasing the amount of new MH support and care facilities adapted to the modern needs and adjusted to what resources are already available, especially in rural areas, rebuilding of destroyed facilities etc.). However, since this process is complex and requires good planning and a stepwise approach, the time to initiate fundamental changes is now, and the general population demonstrates its readiness to accept that more than ever before in independent Ukrainian history.

The war in Ukraine has created a significant mental health crisis, which will continue to affect people's lives long after the conflict has ended. It is essential to prioritize mental health care and support for those affected by the conflict and work towards building a resilient and sustainable mental health system in Ukraine in the future.

Limitations

This study consists of various limitations. In particular,

- Stress can be considered a very subjective feeling therefore applying the same 5-grade scale may bring similar results in different less objectively stressful contexts (for instance people out of war may subjectively evaluate their stress level as high too); in addition, this study does not have a control group therefore limited reference to certain determinants such as level of stress, spectrum of emotions etc.;
- Relatively small sample size which does not represent opinions of the whole population; small males group (especially older) which is caused mainly by the fact that men usually pay less attention to online questionnaires considering it as an "unserious thing";
- Age groups - older groups have a much wider age spread but also a lesser amount of participants in each group. That was the main reason why the border age between "younger" and "older" was 26 as this age group consisted of the biggest amount of participants. Such division was performed for the sake of equal age distribution. This is also a reason for absence of stratification of the age group by generational classification presented in introduction. In the future, it would be relevant to check more detailed attitudes to mental health system barriers stratified by each particular generation;

- No rural population and financial status variable included to the questionnaire which could bring more insights but also was considered as too sensitive to ask in a conditions of war;
- The questionnaire may consist more detailed questions in the access block;

Disclaimer: the study is not aimed to give any clinical diagnoses; by PTSD we understand a combination of signs assigned under this diagnosis by the International Classification of Diseases of 11th revision.

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Supplementary materials

Table 2: Questionnaire

		Total		Women 16-25 years old		Men 16-25 years old		Women 26> years old		Men 26> years old	
		N	%	N	%	N	%	N	%	N	%
Mental health state and mental self-care behaviors											
1	**How would you rate your current psychological state?**	**331**		**180**		**52**		**2**		**17**	
	1	14	4.2%	12	6.7%	0	0.0%	1	1.2%	1	5.9%
	2	42	12.7%	26	14.4%	5	9.6%	10	12.2%	1	5.9%
	3	159	48.0%	88	48.9%	21	40.4%	43	52.4%	7	41.2%
	4	94	28.4%	44	24.4%	24	46.2%	21	25.6%	5	29.4%
	5	22	6.6%	10	5.6%	2	3.8%	7	8.5%	3	17.6%
2	**Please describe your current mental health state with any 3 words.**	**283**	**633**	**143**	**353**	**43**	**85**	**80**	**168**	**17**	**35**
	Tension	33	5.2%	16	4.5%	4	4.7%	10	6.0%	3	8.6%
	Fatigue	55	8.7%	29	8.2%	16	18.8%	7	4.2%	2	5.7%
	Anxiety	149	23.5%	78	22.1%	15	17.6%	48	28.6%	8	22.9%
	Hate/anger	17	2.7%	8	2.3%	4	4.7%	4	2.4%	1	2.9%
	Irritability	23	3.6%	11	3.1%	1	1.2%	8	4.8%	3	8.6%
	Apathy/indifference	58	9.2%	39	11.0%	9	10.6%	8	4.8%	1	2.9%
	Sadness	84	13.3%	46	13.0%	7	8.2%	29	17.3%	2	5.7%
	Fear	23	3.6%	16	4.5%	0	0.0%	6	3.6%	1	2.9%
	Uncertainty	31	4.9%	16	4.5%	2	2.4%	19	11.3%	4	11.4%
	Peace	70	11.1%	42	11.9%	16	18.8%	8	4.8%	4	11.4%
	Hope	30	4.7%	15	4.2%	4	4.7%	10	6.0%	1	2.9%
	Despair, sorrow	28	4.4%	15	4.2%	2	2.4%	8	4.8%	3	8.6%
	Inspiration, ardor	32	5.1%	22	6.2%	5	5.9%	3	1.8%	2	5.7%
3	**How your relationships within social environment changed**	**280**		**146**		**39**		**79**		**16**	

	since the beginning of the full-scale invasion?										
	More desire to be more among friends or like-minded people	113	40.4%	64	43.8%	17	43.6%	25	31.6%	7	43.8%
	More desire to be among people in general	20	7.1%	7	4.8%	6	15.4%	6	7.6%	1	6.3%
	Did not change	59	21.1%	28	19.2%	10	25.6%	16	20.3%	5	31.3%
	Became more closed	75	26.8%	38	26.0%	6	15.4%	28	35.4%	3	18.8%
	Became radically closed	13	4.6%	9	6.2%	0	0.0%	4	5.1%	0	0.0%
4	**Do you have or had intrusive thoughts or flashbacks of the stress you experienced after the beginning of the full-scale invasion?**	**285**		**149**		**39**		**81**		**16**	
	Yes	137	48.1%	78	52.3%	16	41.0%	39	48.1%	4	25.0%
	Yes, in combination with somatic symptoms	32	11.2%	21	14.1%	4	10.3%	7	8.6%	0	0.0%
	No	116	40.7%	50	33.6%	19	48.7%	35	43.2%	12	75.0%
5	**Did you have (or do you have now) problems with sleep or appetite after the full-scale invasion?**	**285**		**149**		**39**		**81**		**16**	
	Problems with sleep	120	42.1%	50	33.6%	16	41.0%	43	53.1%	11	68.8%
	Problems with appetite	19	6.7%	12	8.1%	3	7.7%	4	4.9%	0	0.0%
	Problems with both sleep and appetite	85	29.8%	53	35.6%	9	23.1%	23	28.4%	0	0.0%
	No, don't and didn't have neither	61	21.4%	34	22.8%	11	28.2%	11	13.6%	5	31.3%
6	**Do you reproach yourself sometimes for not being courageous enough, for not doing enough during the full-scale invasion?**	**100**		**58**		**7**		**32**		**3**	

	Yes	42	42%	25	43%	3	42.9%	12	37.5%	2	66.7%
	No	58	58%	33	57%	4	57.1%	20	62.5%	1	33.3%
7	**How do you distract yourself\ cope with stress after the beginning of full-scale invasion? (Multiple choice question)**	**332**	**944**	**181**	**554**	**52**	**162**	**82**	**189**	**17**	**39**
	Procrastination	221	23.4%	137	24.7%	41	25.3%	36	19.0%	7	17.9%
	Music, art	190	20.1%	127	22.9%	36	22.2%	21	11.1%	6	15.4%
	Talk with a close person	178	18.9%	104	18.8%	28	17.3%	38	20.1%	8	20.5%
	Talk with a specialist	29	3.1%	18	3.2%	1	0.6%	10	5.3%	0	0.0%
	Sport	109	11.5%	58	10.5%	26	16.0%	20	10.6%	5	12.8%
	Volunteering or any other kinds of help related to the war	79	8.4%	36	6.5%	9	5.6%	27	14.3%	7	17.9%
	Travel	59	6.3%	34	6.1%	5	3.1%	18	9.5%	2	5.1%
	Work	79	8.4%	40	7.2%	16	9.9%	19	10.1%	4	10.3%
Stigma and self-stigma											
8	**If any, what are your current health-related worries?**	**133**		**60**		**16**		**51**		**6**	
	Mental health-related	60	45.1%	33	55%	4	25%	21	41.2%	2	33.3%
	Other (somatic)	73	54.9%	27	45%	12	75%	30	58.8%	4	66.7%
9	**Do you feel that you can easily share any (even the most delicate) problem with your doctor? (SELF-STIGMA)**	**332**		**181**		**52**		**82**		**17**	
	Yes, there is no problem to me	200	60.2%	101	55.8%	33	63.5%	55	67.1%	11	64.7%
	No, there are some issues that I am ashamed to discuss with the doctor	132	39.8%	80	44.2%	19	36.5%	27	32.9%	6	35.3%
10	**How important is your mental state to your overall functioning?**	**283**		**148**		**39**		**80**		**16**	

	This is my basic need at all times, otherwise I cannot be productive	116	41.0%	64	43.2%	21	53.8%	26	32.5%	5	31.3%
	I started to pay more attention after the extreme stress	60	21.2%	31	20.9%	1	2.6%	26	32.5%	2	12.5%
	It's not a right time for this now, but overall important	55	19.4%	23	15.5%	10	25.6%	20	25.0%	2	12.5%
	This may bother only when there is no more important problems	52	18.4%	30	20.3%	7	17.9%	8	10.0%	7	43.8%
11	**Which from the following medical-related topics do you think is the most difficult to talk about in Ukrainian society?**	**322**		**175**		**48**		**82**		**17**	
	Mental health	127	39.4%	75	42.9%	17	35.4%	27	32.9%	8	47.1%
	HIV	81	25.2%	47	26.9%	17	35.4%	12	14.6%	5	29.4%
	Gender/sex-related	9	2.8%	5	2.9%	0	0%	0	0.0%	0	0%
	Tuberculosis	5	1.6%	5	2.9%	0	0%	0	0.0%	0	0%
	Cancer	29	9.0%	17	9.7%	3	6.3%	9	11.0%	0	0%
	I don't see any	75	23.3%	26	14.9%	11	22.9%	34	41.5%	4	23.5%
Intention to professional mental health support utilisation											
12	**Have you ever sought any kind of mental health services (psychologist, psychotherapist, psychiatrist) in your life?**	**280**		**144**		**39**		**81**		**16**	
	Yes, before full-scale invasion for the first time	75	26.8%	41	28.5%	10	25.6%	21	25.9%	3	18.8%
	Yes, after the full-scale invasion for the first time	20	7.1%	13	9.0%	2	5.1%	5	6.2%	0	0.0%
	Never but maybe in the future	112	40.0%	65	45.1%	17	43.6%	26	32.1%	4	25.0%

	No, because it`s complicated/not enough info for me	13	4.6%	4	2.8%	3	7.7%	4	4.9%	2	12.5%
	No, never, because I have a distrust to specalists qualification	9	3.2%	2	1.4%	0	0.0%	6	7.4%	1	6.3%
	No, never and am not planning to	51	18.2%	19	13.2%	7	17.9%	19	23.5%	6	37.5%
13 (7)	**How do you distract yourself\ cope with stress after the beginning of full-scale invasion?**	**332**		**181**		**52**		**82**		**17**	
	Talk with a specialist	29	8.7%	18	9.9%	1	1.9%	10	12.2%	0	0%
	Other	303	91.3%	163	90.1%	51	98.1%	72	87.8%	17	100%
14	**Which one from these two options is more difficult for you:**	**332**		**181**		**52**		**82**		**17**	
	Make an initial primary visit	191	58%	109	60.2%	26	50.0%	44	53.7%	12	70.6%
	Make repeated systematic visits	141	42%	72	39.8%	26	50.0%	38	46.3%	5	29.4%
Beliefs on access to professional mental health support											
15	**How easy is it for you to get psychological help (if necessary)?**	**332**		**181**		**52**		**82**		**17**	
	Easy	166	50%	96	53.0%	22	42.3%	40	48.8%	8	47.1%
	Not easy	166	50%	85	47.0%	30	57.7%	42	51.2%	9	52.9%
16	**Do you and your doctor have a significant language barrier?**	**332**		**181**		**52**		**82**		**17**	
	Yes	47	14.2%	24	13.3%	6	11.5%	14	17.1%	3	17.6%
	No	285	85.8%	157	86.7%	46	88.5%	68	82.9%	14	82.4%
Query to change current mental health attitudes and practices											
17	**How often do you feel that your usual ways of dealing with stress listed**	**332**		**181**		**52**		**82**		**17**	

	before are not enough; you need something else?										
	Yes	98	29.5%	59	32.6%	13	25%	22	26.8%	4	23.5%
	No	234	70.5%	122	67.4%	39	75%	60	73.2%	13	76.5%
18 (12)	**Have you ever sought any kind of mental health services (psychologist, psychotherapist, psychiatrist) in your life?**	**280**		**144**		**39**		**81**		**16**	
	Never but maybe in the future	112	40%	65	45.1%	17	43.6%	26	32.1%	4	25%
	Other responses	168	60%	79	54.9%	22	56.4%	55	67.9%	12	75%

Table 3a: Logistic regression								
OR (95%-CI, p-value)	**Mental health state (bad vs good)**		**Intention to use mental health support (yes vs no)**		**Access (easy vs difficult)**		**Query to change (yes vs no)**	
	bivariable	multivariable	bivariable	multivariable	bivariable	multivariable	bivariable	multivariable
Age (older vs younger), N=332	0.62 (0.32-1.2, 0.157)	1.28 (0.51-3.21, 0.602)	0.79 (0.35-1.76, 0.559)	0.5 (0.17-1.53, 0.224)	1.08 (0.68-1.73, 0.75)	0.82 (0.39-1.73, 0.605)	1.27 (0.75-2.15, 0.369)	0.96 (0.43-2.13, 0.911)
Gender (F vs M), N=332	0.48 (0.21-1.11, 0.086)	0.36 (0.08-1.7, 0.199)	**8.14 (1.09-60.9, 0.041)**	1.9 (1.36-2.66, 0.0001)	1.38 (0.81-2.36, 0.235)	1.25 (0.48-3.27, 0.642)	1.37 (0.75-2.51, 0.31)	1.03 (0.35-2.99, 0.961)
Location (in vs out UA), N=332	1.69 (0.87-3.29, 0.123)	1.12 (0.47-2.71, 0.796)	**0.32 (0.14-0.72, 0.006)**	0.4 (0.13-1.27, 0.12)	1.12 (0.64-1.95, 0.7)	1.39 (0.6-2.82, 0.364)	**0.42 (0.24-0.74, 0.003)**	**0.38 (0.18-0.82, 0.014)**
Self-stigma, N=332	1.56 (0.88-2.74, 0.126)	1.38 (0.77-2.48, 0.285)	**2.79 (1.1-7.04, 0.03)**	**2.61 (1.02-6.67, 0.045)**	**1.91 (1.22-2.97, 0.004)**	**1.99 (1.27-3.15, 0.003)**	**1.91 (1.22-2.97, 0.004)**	**0.61 (0.37-0.99, 0.044)**
Stigma, N=332	0.82 (0.41-1.64, 0.576)	0.95 (0.47-1.93, 0.887)	0.64 (0.29-1.47, 0.293)	0.76 (0.33-1.78, 0.529)	1.03 (0.62-1.71, 0.92)	1.2 (0.71-2.03, 0.493)	**0.62 (0.38-0.99, 0.05)**	0.88 (0.49-1.55, 0.648)

Table 3b: Logistic regression on stigma				
OR (95%-CI, p-value)	**Self-stigma**		**Stigma**	
	bivariable	multivariable	bivariable	multivariable
Age (younger vs older), N=332 for bivariable, N=134 for multivariable	0.66 (0.4-1.08, 0.1)	**0.38 (0.15-0.94, 0.035)**	**3.11 (1.83-5.3, 0.00003)**	**2.7 (1.15-6.31, 0.022)**
Gender (F vs M), N=332 for bivariable, N=134 for multivariable	0.82 (0.48-1.43, 0.487)	0.46 (0.14-1.54, 0.209)	0.99 (0.53-1.86, 0.987)	0.98 (0.33-2.92, 0.97)
Younger females, N=181 (75)	ns	**0.56 (0.33-0.94, 0.03)**	**2.82 (1.66-4.8, 0.0001)**	ns
Younger males, N=52 (12)	ns	ns	ns	ns
Older females, N=82 (38)	ns	ns	**0.29 (0.7-0.5, 0.00001)**	ns
Older males, N=17 (9)	ns	ns	ns	ns
Situation (stable vs unstable), N=134	**3.96 (1.36-11.54, 0.012)**	**5.84 (1.73-19.65, 0.004)**	0.89 (0.27-2.95, 0.852)	0.66 (0.19-2.35, 0.521)