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RESEARCH ARTICLE

Self-reported health and coping strategies of Ukrainian female refugees in the Czech Republic

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ABSTRACT

The main aim of the study was to investigate the coping strategies and their association with self-reported general health/psychological status in Ukrainian female refugees' sample ($N = 919$) in the Czech Republic. The BRIEF-COPE inventory was employed to investigate coping strategies. Binomial logistic regression analysis was performed to investigate the association between self-reported general health status and self-reported psychological status with coping strategies adjusted by socio-demographics. The findings showed that within problem-focused coping strategies, planning what to do and taking action to try to make the stressful situation better has been found the most frequently used. Among the emotion-focused coping, more often used strategies connected with accepting the situation and learning to live in new circumstances. On side of avoidance coping strategies, only strategies to work or to do other activities 'to take their minds off things' were used more often. Further, outcomes revealed that ineffective coping strategies of self-blame and behavioral disengagement were associated with poorly reported general health/psychological status, and effective coping strategy was positively associated with better-reported psychological status. The research outcomes could be useful for the policymakers to help Ukrainian female refugees to better adapt to the country and avoid worsening physical and mental health statuses.

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KEYWORDS Refugees; female's health; self-reported health; coping strategies; the BRIEF-COPE; Ukraine

Introduction and background

The Russian invasion of Ukraine on 24th February 2022 suddenly led millions of Ukrainian to leave their homes and communities to seek safety as refugees in foreign countries such as the Czech Republic.

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Currently, on 16th January 2023, the Czech government has already granted 'temporary protection' to 481 047 refugees fleeing from Ukraine. Out of the total amount of refugees, 46% are females and 36% are children (Operational Data Portal 2023). The status of war-related refugees suggested that in some cases the person has been separated from family members and/or lost close family members or friends. For female refugees, especially those with children, an additional burden is taken considering the process of re-establishing their home, protecting family values and cultures, and at the same time, searching for a new job and adapting to a new place and language. Undertaking these responsibilities altogether can impact female refugees' physical and mental health due to the pressure of the stressful situation.

Coping strategies

People who are forced to migrate to foreign countries due to war is more sensitive to being committed by stress. Stress is an unavoidable aspect of human life, and Hans Selye, known as 'the father of stress research', defined it as a '*nonspecific response of the body to any demand*' (Selye and Fortier 1950). Additionally, Lazarus and Folkman defined stress as a '*particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being*' (Lazarus and Folkman 1984). Among theories of stress, the most dominant and influential, which the present study relies on, is the *transactional model of stress and coping* proposed by Lazarus and Folkman. This theory explains that an individual's perception of an event, risk, and ability to cope determines if an event is perceiving stressful or not. According to theory, stress is an outcome of a disproportion between perceived external or internal demands and the perceived individual and social resources to cope with them (Lazarus and Folkman 1984).

Coping is an essential aspect of an individual's adaptational process throughout stressful events and could predict their physiological and psychological well-being. The psychologists Lazarus and Folkman (1984) defined coping as *constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person.* Individuals use the coping strategies perceived as more effective for them in a specific stressful event, based on previous experience. Therefore, the strategies could vary between individuals as well as within the individual (Johnson 1999).

Coping resources affect coping processes and could trigger different reactions, based on the availability of resources, such as taking action, managing emotions, or avoiding handling stressful events (Taylor and Stanton 2007). Coping actions can be organized into coping strategies (coping responses) in a multidimensional construct (Lazarus and Folkman 1984; Carver et al. 1989; Parker and Endler 1992). Also, individuals could employ a mix of coping strategies to adapt to a stressful event, which could be effective or ineffective regarding influence on health and well-being. The dichotomized coping approach includes problem-focused and emotion-focused, as problem-focused coping strategies are directed to alter the source of stress (action-oriented coping), and emotion-focused coping strategies are aimed to handle the emotions that accompany the perception of stress (emotion-oriented coping) (Carver et al. 1989). Additionally, the literature has reported other coping strategies, for instance, avoidance, which is related to the act of denying the occurrence of a stressful event. Avoidance coping strategy includes the avoidance of thinking about the stressful event and making no effort to solve the problem or change the situation (Endler and Parker 1994).

It has been described in the literature that each individual can respond to stressful events in both adaptive (effective or positive) and maladaptive (ineffective or negative) ways, moreover, the strategies can be adaptive or maladaptive in specific contexts (Carver and Connor-Smith 2010). Maladaptive coping strategies, such as behavioral disengagement and self-blame, it has previously been associated with mental and physical health (Lehavot 2012). Coping strategies associated with better mental health are classified as positive emotion-focused coping styles. For example, positive reframing refers to a reappraisal of a stressful event in positive terms (Stanislawski 2019). The coping strategies used for Ukrainian war refugees and their association with mental and physical health are still a topic lacking in the literature. Few studies have shown that emotion-focused and avoidance coping strategies were associated with psychological symptoms and self-reported poorer physical health in refugees (Matheson et al. 2008). Ineffective coping strategies have been demonstrated to predispose refugees to mental disorders, such as post-traumatic stress disorder, anxiety, and depression. On the opposite, effective coping may positively influence refugee health status (Matheson et al. 2008; Huijts et al. 2012). Therefore, information about how war refugees can cope with stressful situations can play a key role in physiological and psychological health.

Regarding coping strategies and refugees, demographic factors need to be considered. Age is significantly associated with coping strategies and health, when the eldest presented fewer coping recourses and worst health at the same time younger refugees are more flexible to cope with the situation (Roberts and Browne 2011). Education was also found to be an important factor for effective coping, as younger refugees who had a higher education were more likely to employ problem-solving strategies, at the same time older, having a lower education were more possibly to employ social support-seeking strategies (Alzoubi et al. 2019). It can be considered that refugees with a high level of education could have more knowledge and cognitive skills to cope with stressful events.

Lastly, the association of cope strategies and economic, financial, employment statuses, and administration of resources is a sensitive and important topic to be considered among refugees. Higher socioeconomic status and major income can help refugees to be more effective in process of adaptation to a new environment (Alzoubi et al. 2019). Unemployment status has been shown to have a negative impact on psychological well-being and the use of coping strategies (Roberts and Browne 2011). However, as demonstrated in another study, the employment status of female refugees is strongly related to proficiency in the national language of the host country (Hashimoto-Govindasamy and Rose 2011).

Ukrainian refugees' profiles and health issues: evidence in Europe and the Czech Republic

According to the Organization for Economic Co-operation and Development (OECD), the demographic composition of refugees from Ukraine differs from others because '*at least 70% of the adults are women and over a third of all refugees are children*' (SAM – UKR Survey 2022). It can be interpreted that most of the refugees could be mothers with children. The European Union Agency for Asylum in partnership with OECD conducted *the Surveys of Arriving Migrants from Ukraine* (from 11th April to 7th June 2022) across European countries. The demographic profile of respondents ($N = 2369$) was as follows: most of them are female (82%) between 18 and 44 years (81%), with university degrees (73%), and had a job in their motherland (77%). Work opportunities were the most important reason among the refugees for choosing the destination country. Refugees rated their general satisfaction with access to medical care as 3.2 out of 5; children's education as 3.4; and

living conditions as 3.6. An important point to address is that 73% of refugees have been vaccinated for COVID-19 (SAM – UKR Survey 2022).

Another online and phone-based survey with refugees from Ukraine across European countries was conducted by the United Nation Refugee Agency (UNHCR). Data ($N = 4871$) was collected in the Czech Republic, Hungary, the Republic of Moldova, Poland, Romania, and Slovakia (16th May to 15th June 2022), including 7 focus groups conducted in Poland and Romania. Similarly, the sample was 90% of women and children; 77% of female refugees have technical, vocational, or university education and 76% of them had jobs in Ukraine. The main reasons to choose the host country were safety, family ties, and access to employment. Important to point out that respondents have experience in such crucial branches of the economy as education (17%) and medical (11%) services as well as social services (5%) (UNHCR 2022b). The UNHCR's follow-up research was conducted in 43 countries ($N = 4814$) (between August and September 2022) by using phone-based surveys, web-based surveys, and face-to-face interviews as well as a series of focus groups. Likewise, findings showed that the majority (89%) of respondents are females with an average age of 42 years old and completed university studies (70%), 63% of them had jobs in Ukraine including such sectors as education (16%), and health and social service (7%). At the time of the survey, 28% of them were currently employed in the host country. Regarding main sources of income: 47% of households have social protection benefits/cash assistance, 32% – have savings, 35% – have salaries, 12% – have pensions, and 12% – have transfers from relatives or friends in Ukraine (UNHCR 2022a).

In June 2022, the Ministry of Labour and Social Affairs of the Czech Republic (MLSA) surveyed Ukrainian refugees, who settled in the country. An online questionnaire was sent by email to 65,145 refugees that applied for humanitarian benefits and received feedback from 29, 012 adults and 21, 224 children. The survey sample consists of 44% women and 36% children. 75% of the adult are under 45 years and 35% of them have university degrees. More than 50% of adults are economically active, 80% of them are working in low-skilled occupations and approximately 75% of respondents reported that they are in a 'very unsatisfactory' or 'critical' financial situation (Klimešová et al. 2022). The survey of the MLSA was followed by panel waves prepared by the MLSA in cooperation with the Institute of Sociology of the Czech Academy of Sciences. The panel waves about the health and mental health of Ukrainian refugees included 1347 participants and collected

data in September 2022. The panel wave showed that refugees reported problems with access to medical services: 62% of adults and 53% of children do not have a primary healthcare physician. Moreover, 19% of refugees reported that they did not get an appointment with the doctor when they needed it. The main barrier was defined as absent Czech language skills (45%) as well as a lack of information about how to register with a doctor and a long waiting list. The survey showed that the health status of refugees is related to their socio-economic situation, more precisely, refugees in material deprivation, those without basic knowledge in Czech, and those in worse housing conditions estimated their health worse (Hlas Ukrajinců: Zdraví a služby 2022). Additionally, the study showed that 45% of both gender refugees have moderate symptoms of depression or anxiety, which are connected with refugees' background regarding family separation and other war issues and socioeconomic status in the Czech Republic connected to unemployment, poor housing, material deprivation, lack of language skills, and low level of children's enrolling to schools and kindergartens. The main obstacle to getting medical assistance with mental health issues was stated as the lack of information on what services are available and the shame to seek psychiatric help (Hlas Ukrajinců: Duševní zdraví 2022).

Taking into account the above, considering that effective coping strategies play an important role in mental and physical health, but also can be influenced by some individual characteristics, understanding how Ukrainian female refugees are coping with the stressful situation becomes necessary. The main aim of the study was to identify the coping strategies used by Ukrainian female refugees settled in the Czech Republic since 24 February 2022. After, it was investigated the association of different coping strategies with the demographic characteristics of respondents, and self-reported general health/psychological status. Additionally, the study translated and tested the psychometric properties of the Brief Coping Orientation to Problems Experienced (the Brief-COPE) in the specific sample.

Methods

Participants and data collection

The study focuses on Ukrainian female refugees which are settled in the Czech Republic. The inclusion criteria included being a female aged

above 18 years and coming to the Czech Republic due to the war (from 24th February). This study is part of a big project involving female and children refugees in the Czech Republic. Data were obtained via an online survey, created in the Ukrainian language, with questionnaires related to self-reported physical health and psychological status, coping strategies, and demographic characteristics. The survey was distributed through social media groups (Facebook, Telegram, and Viber), non-government organizations working with refugees, and Czech schools in which Ukrainian children are enrolled. Females, who had agreed to participate in the study, were asked to sign a consent form online before completing the questionnaires. They also were informed about voluntary participation and the possibility of withdrawing from the study at any given stage. The data was collected between the 6th of June the and 6th of September, 2022.

Demographic characteristics

To characterize the participants, the following demographical information was collected: age, marital status, number of children, place of residence (in Ukraine and the Czech Republic), the highest level of education obtained, employment status (in Ukraine and the Czech Republic), financial situation (in Ukraine and the Czech Republic) (Table 1).

Self-reported general health and emotions and psychological status

Self-reported health (SRH) is commonly used as a measure of general health when extensive measurements of health are not possible because of the connection of this indicator to disease burden as well as to mental health. Besides, 'SRH reflects coping resources and influences health-related behavior that affects outcome' (Lorem et al. 2020). In this study, self-reported health was used as an indicator of the females' general subjective health. This indicator has been used for monitoring health outcomes and measures of morbidity, mortality, and health care services (Wu et al. 2013; Wuorela et al. 2020). The SRH measured the following question: 'Please estimate your physical health today'. The respondents should choose one of the 5-point options: 'very bad', 'bad', 'fair', 'good', or 'very good'. Similarly, a question about their emotions and psychological status was asked, with the option to answer from 'very bad' to 'very good'.

Table 1. Socio-demographic, self-reported general health, emotions, and psychological status characteristics of Ukrainian female refugees in the Czech Republic ($n = 919$).

Socio-demographic characteristics:	Absolute frequency (n)	Relative frequency (%)
Age (in years)		
Under 30	198	21.9
30–40	379	41.9
Above 40	328	36.2
Marriage status		
Single	141	15.8
Married	610	68.4
Divorced/separated	141	15.8
Residence in Ukraine		
Countryside	93	10.2
Town	257	28.3
City	558	61.5
Residence in the Czech Republic		
Prague	185	20.1
Brno	175	19.0
Others	559	60.8
Macro-economic regions in Ukraine		
West	83	9.2
Centre	311	34.4
South	261	28.8
East	250	27.6
Economic Financial Status Now		
Became better	80	8.8
Stay the same	141	15.4
Became worst	692	75.8
Economic Financial Status Before War		
Not enough money for food	10	1.1
Enough money for food, buying clothes was difficult	176	19.3
Enough money for food, clothes, making savings	618	67.8
May buying expensive things, making big savings	108	11.8
Highest Level of Education		
Incomplete Secondary Education	12	1.3
Complete Secondary Education	64	7.0
Vocational Education	87	9.5
Incomplete High Education	63	6.9
Basic High Education (bachelor)	103	11.2
Complete High Education (specialist/master)	550	59.8
Ph.D. (candidate of science)	34	3.7
Employed in the Czech Republic		
No	637	69.3
Yes	277	30.1
Have children under 18 years old		
No	268	29.3
Yes	646	70.7
Get Free Medical Insurance		
No	243	26.4
Yes	676	73.6
Get Financial Help		
No	198	21.5
Yes	721	78.5
Self-Reported Health Now		
Very Good	35	3.8
Good	358	39.2
Fair	427	46.8
Bad	74	8.1

(*Continued*)

Table 1. Continued.

Socio-demographic characteristics:	Absolute frequency (*n*)	Relative frequency (%)
Very Bad	19	2.1
Self-Reported Health During the Last Month		
Get better	84	9.2
Stay the same	575	62.9
Get worst	255	27.9
Self-Reported Emotional and Psychological Status		
Very Good	11	1.2
Good	113	12.4
Fair	480	52.7
Bad	237	26.0
Very Bad	70	7.7

Coping strategies measures

To assess the coping strategies of Ukrainian female refugees, the study utilized the BRIEF-COPE. In the literature, few instruments are validated to measure coping strategies (Schwarzer and Schwarzer 1996). The BRIEF-COPE Inventory is an abbreviated version of the original 60-item Coping Orientation to Problems Experienced inventory (Carver et al. 1989). Carver with colleagues developed a multidimensional coping inventory to measure a variety of ways in which people can respond to stressful events. The COPE Inventory has a theory-based measure using the transactional model of stress and coping (Lazarus and Folkman 1984) and the behavioral self-regulation model (Carver et al. 1989) in contrast to other tools constructed empirically. Unlike other tools, the COPE has shown reliable psychometric properties of both dispositional and situational coping efforts (Carver 1997; Carver et al. 1989). Although, the BRIEF-COPE is one of the most widely used tools for the English and non-English-speaking populations (Lehavot 2012; Furman 2018) used in a previous study with refugees (Kapsou et al. 2010).

The Brief-COPE includes 28 items to measure different coping strategies for stressful events. It measures 14 sub-scales of coping reactions (two questions each) about: active coping, planning, instrumental support, positive reframing, acceptance, emotional support, humor, religion, venting, self-distraction, denial, behavioral disengagement, substance use, and self-blame. Each item was scored using a 4-point Likert scale (1 = I haven't been doing this at all to 4 = I've been doing this a lot). According to the author, researchers could modify the instrument to fit sample characteristics (e.g. removing or changing scales or items to fit the sample) (Caver 1997). This study applied the three-dimension

conceptual system which includes problem-focused coping (dealing with sources of stress), emotion-focused coping (handling feelings and thoughts associated with the stressor), and avoidant coping (avoiding dealing with the stressor or associated emotions) (Table 2) (Carver et al. 1989; Huijts et al. 2012).

The instrument was forward and backward translated from English to the Ukrainian language for use in the present study. The translation was performed by two different translation agencies and reviewed by a researcher and psychologist. The Ukrainian translation of the BRIEF-COPE demonstrated a valid and reliable instrument and can be used in future studies to measure coping strategies in the Ukrainian population (Appendix 1).

Statistical analysis

Descriptive statistics of central tendency and dispersion, absolute and relative frequency were used to display the female refugees' responses. Binomial logistic regression analysis was performed to investigate the association between self-reported general health status (Model 1) and self-reported emotions and psychological status (Model 2) with coping strategies (14 scales of the BRIEF-COPE) adjusted by socio-demographic covariates. The results are reported in odd ratios (OR) with 95% confidence intervals (CI). The BRIEF-COPE statistic validation was better described in the supplementary materials (Appendix 2–6).

Jamovi statistic software version 2.2.5. was utilized to perform the confirmatory factor analysis in the BRIEF-COPE validation process (The jamovi project 2021; R Core Team 2021; Gallucci and Jentschke 2021; Rosseel 2019; Epskamp et al. 2019). The remaining analysis was performed via Statistical Package for the Social Sciences IBM SPSS version 28. All statistical analysis was performed at a 5% level of significance.

Results

A total of 919 responses from Ukrainian female refugees were obtained. According to the descriptive statistic (Table 1), the average age of the respondents was 38 years old ($M = 37.61$; SD = 9.57). 68.4% of respondents are married/cohabited and more than 70% reported that they have children under 18 years old. Most respondents have a university education (71%), lived in Ukrainian cities and towns (88.7%), and had

Table 2. Frequency of use of coping strategies by Ukrainian female refugees ($n = 919$).

Three-detentions the BRIEF-COPE strategies	14 scales	Mean (SD)	Not at all (*n*, %)	A little bit (*n*, %)	A medium amount (*n*, %)	A lot (*n*, %)
I Problem-focused coping strategies						
I've been concentrating my efforts on doing something about the situation I'm in.	Acting coping	3.05 (0.88)	37 (4.3)	205 (23.6)	306 (35.3)	320 (36.9)
I've been taking action to try to make the situation better.	Acting coping	3.15 (0.77)	13 (1.5)	160 (18.7)	371 (43.4)	311 (36.4)
I've been getting help and advice from other people.	Instrumental support	2.26 (095)	202 (23.6)	332 (38.8)	222 (25.9)	100 (11.7)
I've been trying to see it in a different light, to make it seem more positive.	Positive reframing	2.73 (0.91)	73 (8.6)	275 (32.3)	312 (36.6)	192 (22.5)
I've been trying to come up with a strategy about what to do.	Planning	3.02 (0.85)	43 (5.0)	174 (20.4)	363 (42.6)	273 (32.0)
I've been looking for something good in what is happening.	Positive reframing	2.73 (0.96)	106 (12.5)	211 (25.0)	332 (39.3)	196 (23.2)
I've been trying to get advice or help from other people about what.	Instrumental support	2.23 (0.94)	203 (24.1)	337 (39.9)	210 (24.9)	94 (11.1)
I've been thinking hard about what steps to take.	Planning	3.11 (0.81)	26 (3.1)	157 (18.6)	356 (42.2)	305 (36.1)
II Emotion-focused coping strategies						
I've been getting emotional support from others.	Emotional support	1.83 (0.94)	401 (46.2)	273 (31.5)	131 (15.1)	63 (7.3)
I've been saying things to let my unpleasant feelings escape.	Venting	2.45 (1.01)	167 (19.5)	299 (34.9)	226 (26.4)	165 (19.3)
I've been criticizing myself.	Self-blame	2.48 (1.06)	189 (22.1)	255 (29.8)	224 (26.2)	188 (22.0)
I've been getting comfort and understanding from someone.	Emotional support	2.60 (0.92)	94 (11.2)	310 (36.9)	277 (32.9)	160 (19.0)
I've been making jokes about it.	Humor	2.39 (1.06)	220 (26.3)	227 (27.2)	236 (28.2)	153 (18.3)
I've been accepting the reality of the fact that it has happened.	Acceptance	2.95 (0.95)	77 (9.0)	170 (20.0)	322 (37.8)	283 (33.2)
I've been expressing my negative feelings.	Venting	2.56 (0.95)	120 (14.3)	291 (34.6)	272 (32.3)	158 (18.9)
I've been trying to find comfort in my religion or spiritual beliefs.	Religion	1.89 (1.05)	413 (49.3)	206 (24.6)	117 (14.0)	102 (12.2)
I've been learning to live with it.	Acceptance	3.01 (0.83)	29 (3.4)	203 (23.9)	348 (40.9)	271 (31.8)
I've been blaming myself for things that happened.	Self-blame	1.73 (0.99)	480 (56.9)	187 (22.2)	102 (12.1)	75 (8.9)
I've been praying or meditating.	Religion	2.20 (1.13)	314 (37.2)	201 (23.8)	175 (20.7)	154 (18.2)
I've been making fun of the situation.	Humor	1.62 (0.90)	511 (60.7)	191 (22.7)	89 (10.6)	51 (6.1)
III Avoidant coping strategies						
I've been turning to work or other activities to take my mind off things.	Self-distraction	3.07 (0.91)	53 (6.1)	177 (20.2)	304 (34.7)	341 (39.0)
I've been saying to myself 'this isn't real'.	Denial	2.03 (0.98)	312 (36.3)	295 (34.3)	165 (19.2)	88 (10.2)
I've been using alcohol or other drugs to make myself feel better.	Substance use	1.48 (0.78)	573 (66.4)	192 (22.2)	71 (8.2)	27 (3.1)
I've been giving up trying to deal with it.	Behavioral disengagement	2.24 (0.99)	229 (26.5)	313 (36.3)	207 (24.0)	114 (13.2)

(*Continued*)

Table 2. Continued.

Three-detentions the BRIEF-COPE strategies	14 scales	Mean (SD)	Not at all (*n*, %)	A little bit (*n*, %)	A medium amount (*n*, %)	A lot (*n*, %)
I've been refusing to believe that it has happened.	Denial	2.45 (1.10)	221 (25.8)	221 (25.8)	219 (25.6)	194 (22.7)
I've been using alcohol or other drugs to help me get through it.	Substance use	1.39 (0.75)	631 (73.7)	145 (16.9)	52 (6.1)	28 (3.3)
I've been giving up the attempt to cope.	Behavioral disengagement	2.01 (0.94)	302 (36.3)	284 (33.8)	191 (22.7)	60 (7.1)
I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	Self-distraction	2.68 (0.95)	105 (12.3)	247 (29.0)	315 (37.0)	185 (21.7)

paid work in Ukraine (73.8%). They came from central (34.4%), south (28.8%), and east (27.6%) parts of Ukraine. About 40% settled in the two biggest cities of the Czech Republic (20% – Prague and 19% – Brno). The average time the refugee stayed in the Czech Republic before participating in the survey was 15 weeks ($M = 15.12$; $SD = 5.33$). According to the study, 39.7% of respondents plan to come back to Ukraine, 9.2% don't plan and others don't know the answer yet.

As regards, self-reported health, 43% of females reported their general health as good, 46.8% as fair, and 10.2% as bad and very bad. In addition, 27.9% reported their health has worsened during the last month and 4.5% worsening of their health or sustained injury due to the war. Also, Ukrainian refugees were asked to report their emotions and psychological status, on a 5-point Likert scale, as a result, 52.7% self-reported their status as fair, 26% as bad, and 7.7% as having very bad emotions and psychological status.

Coping strategies responses and the BRIEF-COPE validation

Coping strategies used by Ukrainian female refugees are presented in Table 2. Within the *problem-focused coping strategies* planning what to do and taking action to try to make the situation better has been found to be among the most frequently used coping strategies. Acting coping includes doing something about the stressful situation (3.05) and taking action to try to make the situation better (3.15) while planning consists of thinking hard about what steps to take (3.11) and developing a strategy for what to do (3.02). The instrumental support strategies such as trying (2.23) or getting (2.26) help and advice from other people were reported as a little less used compared with those mentioned before. Among the emotion-focused coping strategies, two items used more often connected with acceptance, firstly, learning to live in new circumstances (3.01) and, secondly, accepting reality (2.95). The least employed were strategies such as humor 'making fun of the situation' (1.62), emotional support from others (1.83), self-blame 'for things that happened' (1.73), and religion 'to find comfort in my religion or spiritual beliefs' (1.89). Within the *avoidance coping strategies* the most often used strategy relating to self-distraction was working or doing other activities to take their minds off things (3.07) and doing something to think about the stressful situation less (2.68). The least frequently employed substance use strategies to 'feel better' (1.48) and to 'get through it' (1.39).

Concerning the BRIEF-COPE validation, the general internal consistency measured by Cronbach's alpha was 0.81, which is considered 'good'. Similarly, the internal consistency of each of the three sub-scales (problem-focused, emotional, and avoidant) was between 0.65 and 0.77. Inter-correlation coefficients between the scales in the BRIEF-COPE are displayed in Appendix 2. These correlations were not strong (from 0.01 to 0.59) which could be explained by the fact that Ukrainian female refugees used different coping strategies during the adaptation process in the Czech Republic. Substance use had the lowest mean inter-correlations with all the other subscales. Informational and emotional supports had the highest mean inter-correlation (0.59) followed by planning and active coping (0.53). Cronbach's reliability for the BRIEF-COPE 14 scales revealed that emotional support (0.46), self–distraction (0.42), and denial (0.48) cannot be considered consistent, so they were deleted from further analysis.

Appendix 3 presented the results of exploratory factor analysis, conducted with principal axis factoring with oblimin rotation and Kaiser normalization. The scree plot suggested a 7-factor structure, accounting for 51.35% of the variance. Two items (Q21 and Q24) with factor loadings $\geq$0.3 were loaded on more than one factor, they both additionally result in Factor 7. The extracted factor 1 included the items of planning, active coping, and one item of acceptance scales (which were loaded into two factors). Overall, this factor appeared to form a problem-focused coping strategy (Carver et al. 1989). Factor 2 consisted of behavioral disengagement and self-blame items. Factor 3 separated the substance use items. Therefore, factors 2 and 3 reflected the avoidant coping strategy (Carver et al. 1989). Factor 4 contained the instrumental support and venting scales. Factor 5 separated the religious items. Accordingly, factors 4 and 5 reflected the support-seeking coping strategy (Doron et al. 2014). Factor 6 corresponded to humor and positive reframing. Factor 7 consists of acceptance scales. Thus, factors 6 and 7 reflected the cognitive restructuring coping strategy (Doron et al. 2014). Appendix 4 showed indexes of good-fit. The SRMR and the RMSEA values less than 0.08 are demonstrating a reasonable and close fit of the model to the data. Other indexes CFI and TLI with values above 0.95 demonstrate a good fit too (Hu and Bentler 1999).

According to the confirmatory factor analysis, the structure of the BRIEF-COPE questionnaire data for Ukrainian female refugees in the Czech Republic showed poor data fit for the three-dimension model, i.e. problem-focused, emotion-focused and avoidant copings.

Goodness-of-fit indexes show poor results for the three-factor model: chi-square = 2130 (df = 195), RMSEA = 0.115, SRMR = 0.103, CFI = 0.917. Therefore better fit is for the four-dimensional model: cognitive restructuring (acceptance, positive reframing, humor), support seeking (religion, venting, instrumental support), avoidance (substance use, self-blame, behavioral disengagement), problem-focused (active coping, planning) (Doron et al. 2014) as it is shown in Figure 1. Scales are reported as squares, and dimensions as ellipses. All the factor loadings are significantly different from zero (Appendixes 5 and 6).

Self-reported health/emotions and psychological status and coping strategies associations

The binomial logistic regression analysis was conducted to check the associations between self-reported general health/emotions and psychological status and coping strategies. Self-reported general health (SRH) was used as a dependent variable for Model 1. SRH was dichotomized into good SRH which includes very good and good categories and poor SRH, which includes bad and very bad categories. Self-reported emotions and psychological status (SREPS) also was dichotomized into: good SREPS which includes very good and good categories and poor SREPS, which includes bad and very bad categories, and used for Model 2. As predictor variables were used the coping strategies were measured as

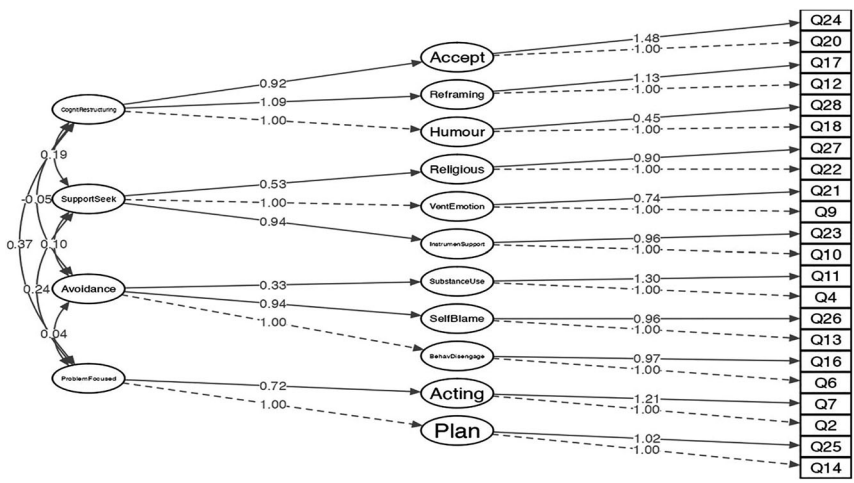

Figure 1. Structure of the BRIEF-COPE Strategies for Ukrainian female refugees in the Czech Republic based on the confirmatory factor analysis.

14 scales of the BRIEF-COPE. Socio-demographic variables such as the age of respondents were categorized into three age groups (under 30, 30-40, and above 40), also used variables: having children under 18 yrs., and staying in the Czech Republic (in weeks). Socio-economic variables such as education, economic situation (in Ukraine/the Czech Republic), employment in the Czech Republic, getting financial aid, and free medical insurance.

Nagelkerke R 2 for Model 1 is 50.2%, and 87.1% of cases are correctly classified. Nagelkerke R 2 for Model 2 is 55.0% and 83.9% of cases were correctly classified. Model 1 was additionally adjusted for two intersections, first, between religion and age groups because of an assumption that older respondents would use more often religion as a coping strategy, and second between having children under 18 yrs. and age because of an assumption that respondents from younger age groups would have more chances to have children under 18 yrs. (Table 3).

The binomial logistic regression analysis results are presented in Table 3. Firstly, in both models, coping strategies such as self-blame and behavioral disengagement were important factors associated with poor reported general health/emotions and psychological status. Self-blame strategies showed moderate use among respondents 'I've been criticizing myself' (2.48) and I've been blaming myself for things that happened (1.73) have a significant association with poor SRH (OR = 2.84) and poor SREPS (OR = 2.79). Behavioral disengagement strategies showed moderate use among respondents 'I've been giving up trying to deal with it' (2.24) and 'I've been giving up the attempt to cope' (2.01) have a significant association with poor SRH (OR = 2.34) and poor SREPS (OR = 4.42). Secondly, females who are using positive reframing coping strategy expected less likely to report poor emotions and psychological status (OR = 0.5).

In addition, it was revealed, that respondents whose economic situation in the Czech Republic remained the same or became worst (compared to their situation in Ukraine) were more likely to report poor general health. On the contrary, females who had enough money for living and some savings were less likely to report poor general health, probably because of the possibility to use their savings for settling in a new country which positively connected to health status. Also, respondents from the age group above 40 or those who have a job in the Czech Republic were more likely to report poor emotions and psychological status. The data showed that the longer a person stays in the Czech Republic the less likely their report poor emotions and

Table 3. The binomial logistic regression analysis.

Variable	Category	Model 1 (SRGH) OR	Model 1 (SRGH) 95%CI	Model 2 (SREPS) OR	Model 2 (SREPS) 95%CI
Active coping	–	.57	(0.32–1.02)	1.15	(0.62–2.13)
Instrumental use	–	.91	(0.53–1.54)	.90	(0.56–1.43)
Positive reframing	**–**	**.98**	**(0.59–1.65)**	**.50*****	**(0.30–0.83)**
Planning	–	.82	(0.43–1.55)	1.59	(0.81–3.11)
Venting	–	.66	(0.40–1.10)	0.92	(0.57–1.48)
Humor	–	1.10	(0.69–1.75)	1.07	(0.68–1.68)
Acceptance	–	1.00	(0.57–1.74)	.67	(0.38–1.18)
Religion	–	1.58	(0.72–3.45)	1.12	(0.76–1.66)
Self-blame	**–**	**2.84*****	**(1.65–4.89)**	**2.79*****	**(1.66–4.69)**
Substance use	–	.69	(0.41–1.18)	1.35	(0.77–2.39)
Behavioral disengagement	**–**	**2.34*****	**(1.38–3.97)**	**4.42*****	**(2.56–7.62)**
Age groups	Under 30	1		1	
	30–40	.99	(0.84–11.65)	1.82	(0.64–5.23)
	Above 40	2.88	(0.26–32–13)	**3.17****	(1.62–9.48)
The economic situation in the CR	Better	1		1	
	The same	**22.64*****	(2.23–230.07)	**5.82****	(1.30–26.01)
	Worst	**9.88****	(1.00–97.27)	**19.30*****	(4.12–90.39)
Economic situation before the war	Enough money for food, but difficult to buy clothing	1		1	
	Enough money for food, clothe, and some saving	**.187*****	(0.70–0.50)	.39	(0.13–1.21)
	Enough money for expensive things and big saving	**.11*****	(0.24–0.54)	1.10	(0.24–5.08)
Education	Incomplete secondary	1			
	Secondary	**.43****	(0.00–0.98)	20.85	(0.04–10802.67)
	Vocational	.16	(0.01–2.54)	.81	(0.00–351.78)
	Incomplete high	.19	(0.01–3.44)	8.08	(0.01–4217.99)
	Basis high (bachelor)	**.52****	(0.00–0.96)	1.63	(0.00–695.01)
	High (master)	.93	(0.00–1.30)	2.12	(0.00–868.35)
	PhD	.32	(0.01–7.56)	1.65	(0.00–841.18)
Employment in the CR	No	1		1	
	Yes	**.22*****	(0.08–0.62)	**3.35****	(1.33–8.41)

(*Continued*)

Table 3. Continued.

Variable	Category	Model 1 (SRGH) OR	Model 1 (SRGH) 95%CI	Model 2 (SREPS) OR	Model 2 (SREPS) 95%CI
Stay in the CR (weeks)		1.03	(0.96–1.11)	**.91*** **	(0.85–0.97)
Having children under 18 yrs.	No	1		1	
	Yes	**.06*** **	(0.01–0.41)	.58	(0.23–1.49)
Getting financial aid	No	1		1	
	Yes	.46	(0.18–1.16)	2.04	(0.81–5.14)
Getting free medical insurance	No	1		1	
	Yes	.84	(0.36–1.97)	.83	(0.37–1.89)
Religion * age groups	Religion * age groups	1			
	Religion * age groups	.89	(0.34–2.34)		
	Religion * age groups	1.02	(0.41–2.55)		
Having children under 18 yrs. * age groups	Having children under 18 yrs. * age groups	1			
	Having children under 18 yrs. * age groups	7.10	(0.66–76–85)		
	Having children under 18 yrs. * age groups	4.52	(0.47–43.71)		
Nagelkerke R^2		.502		.550	
Correctly classified cases		87.1		83.9	

*$p < .05$; **$p < .01$; ***$p < .001$.

psychological status. Females, having children under 18 yrs., were less likely to report poor general health.

Discussion

The present study sought to identify the coping strategies used by Ukrainian female refugees settled in the Czech Republic since 24 February 2022 and investigate the association with their self-reported general health/psychological status and demographic characteristics. Supplementary, the psychometric properties of the coping strategies instrument, the Brief Coping Orientation to Problems Experienced (the BRIEF-COPE) were tested by translation and validation in the Ukrainian-speaking sample. The major findings can be resumed as follow: (1) mothers of children under 18 years, with a high level of education and with a paid job in their motherland was the most refugee respondent; (2) refugees estimated their psychological status three times worst that general physical health; (3) refugees more often used problem-focused and emotion-focused strategies, and less avoidant coping strategies; (4) ineffective coping strategies of self-blame and behavioral disengagement were associated with poorly reported general health/psychological status and effective coping strategy was positively associated with better-reported psychological status; (5) the BRIEF-COPE questionnaire translated into the Ukrainian language presented acceptable proprieties in the female refugees' sample.

The characteristics of Ukrainian female refugees from our study are similar to the other surveys about Ukrainian refugees that settled around Europe. Mothers of children under 18 years, with a high level of education and with a paid job in their motherland was the most refugee in the Czech Republic and also in the SAM – UKR Survey (2022), in the UNHCR Regional Bureau for Europe Surveys # 1 and # 2 (UNHCR 2022a, 2022b). Considering the self-reported health in this research, only 10.2% of females reported their general physical health as poor, nevertheless, for the self-reported psychological status, one-third (33,7%) of them estimate it as bad and very bad status. The results are very similar to 31% of refugees of both genders from a previous survey in the Czech Republic, which reported being aware of the possible mental disorder according to findings, and psychological instruments showed that 45% of refugees of both genders have moderate symptoms of depression or anxiety (Hlas Ukrajinců: Duševní zdravi 2022). Outcomes from the surveys described a positive trend in which the longer female stays in the Czech Republic the less likely she is to report poor

emotions and psychological status. It could be because over time the person better adapts to new conditions, and culture solves household problems, and learns the basic of the Czech language.

Respondents from the oldest age group (above 40 yrs.) in our study are more likely to report poor emotions and psychological status compared with younger age groups. Previously, a study demonstrated a significant association between refugees' age and their health, the eldest have fewer coping recourses and worst health (Roberts and Browne 2011).

A previous study showed a significant association between better self-rated physical and mental health with childlessness in the refugee population (Nesterko et al. 2020). Our findings showed that females, having children under 18 yrs. were less likely to report poor general health, it can be probably because, for mothers caring for children, the process of re-establishing a home, protecting family and cultural values, and securing children's health care and education were effective problem-focus strategies.

Socioeconomic status and income were significantly correlated with subjective health and psychological well-being. Female refugees whose economic situation remained the same or became worst compared to before in Ukraine were more likely to report poor general health. Higher socioeconomic status and income help refugees to be more effective in process of adaptation to a new environment (Crabtree 2010). Unfortunately, according to the survey of the Ministry of Labour and Social Affairs of the Czech Republic, approximately 75% of Ukrainian refugees of both gender in the Czech Republic reported that they are in a 'very unsatisfactory' or 'critical' financial situation after settling in the country (Klimešová et al. 2022). The same outcome was found in the panel waves 'The Voices of Ukrainians in the Czech Republic' where the health status of refugees is related to their socio-economic situation, refugees in deprivation and with poor housing conditions estimated their health worse (Hlas Ukrajinců: Zdraví a služby 2022). On the contrary, our research showed that females who had enough money for living and some savings in Ukraine were less likely to report poor general health, probably because the possibility to use their savings for settling in a new country, is positively connected to health status.

Additionally, previous studies have shown that unemployment status hurts psychological well-being and the use of coping strategies (Roberts and Browne 2011). This study showed the opposite association because respondents who got a job in the Czech Republic were more likely to report poor psychological well-being. It could be explained, as 74,7% of

respondents have high education, 30.1% got a job in the Czech Republic but only 7.4% of them got the job according to their qualifications. Other studies also supported our results because findings showed that refugees with higher education have poorer mental health, more stress, and reported lower job satisfaction because their current employment is not appropriate to their skills and qualifications (Bridekirk et al. 2021). So, females with high education who got unqualified jobs in the Czech Republic got low payments and lowered their social status which caused worsening their psychological well-being. Among unemployment reasons, respondents declared that only low-paid manual labor is offered (30.9%), impossible to be employed by qualification (36.1%). This is also supported by the Ministry of Labour and Social Affairs (MLSA) of the Czech Republic Survey results, therefore 80% of refugees are working in low-skilled occupations (Klimešová et al. 2022).

One more issue that restricted work opportunities for Ukrainian refugees in the Czech Republic reported by participants are the lack of knowledge of Czech and/or English languages (45.6%) needed for getting work. According to previous studies employment status of female refugees is strongly related to proficiency in the national language of the host country (Hashimoto-Govindasamy and Rose 2011). Those refugees who cannot communicate in Czech reported their health as worse also in another survey conducted in the Czech Republic (Hlas Ukrajinců: Zdraví a služby 2022), so it is important for refugees to have access to free language courses.

Considering the coping strategies, to our best knowledge, this study is the first to examine the factor structure of the BRIEF-COPE in Ukrainian female refugees in the Czech Republic. The findings of this research are unique and pioneering in the area. Coping strategies play a key role in both mental and physical health, in the case of Ukrainian female refugees settled in the Czech Republic, their health could be impaired significantly due to the accumulation of different stressful events connected with war, forced migration, and settlement in a foreign country. The BRIEF-COPE in our study suggested a 7-factor structure, previous studies reported a two or more-factor structure of the BRIEF-COPE (Kapsou et al. 2010; Tang et al. 2021). The major findings of the present study are that Ukrainian female refugees used different coping strategies during the adaptation process in the Czech Republic. The results showed that Ukrainian female refugees more often used problem-focused and emotion-focused strategies, and less avoidant coping strategies. Similar results were presented earlier in studies with refugees (Al-Smadi et al. 2017; Khawaja et al. 2008).

In times of uncertainty, problem-focused coping is vital, female refugees are planning and taking the actions that are connected to re-establishing homes for children, deciding about their education (in the Czech education system or Ukrainian online or both), looking for possibilities of work and studying the language of the host country. Additionally, they have to plan their return home or integration into a foreign country's culture. Refugees use emotion-focused coping thought seeking and using instrumental support by getting help from the government and NGOs in the Czech Republic regarding getting access to the educational system for children or medical services for all family members. Moreover, they overcome many bureaucratic obstacles related to obtaining special visas, applying for humanitarian financial or material aid, issuing medical insurance, finding housing, and looking for possibilities to enroll children in kindergartens and schools. They use emotion-coping to accept a new reality and learn to live in an environment and culture, uniting, supporting, and helping each other. Female refugees are forming real and virtual (through social media) communities for self-help, to support Ukraine through organizing and participating in demonstrations, fundraising, and collecting humanitarian aid for people who stay in Ukraine. It is worth mentioning, that the study sample consists mainly of highly educated mothers with children with an average age of 38 yrs., so using alcohol or other drugs as well as self-blame and behavioral disengagement is rarely a choice for them.

Additional outcomes revealed that within problem-focused coping, the association between using the effective coping strategy of *positive reframing* reported better psychological status. *Positive reframing* refers to the more positive reinterpretation of stressful events and was used by Ukrainian female refugees moderately (2.73). Problem-focused strategies were associated with better health outcomes in previous studies as well (Penley et al. 2002; Horwitz et al. 2018; Stanisławski 2019). Contrarily, within emotion-focused coping, it was found associations between ineffective coping strategies *self-blame*, and worst reported general health/psychological status. Additionally, within avoidant coping, it was discovered associations between ineffective coping strategies *behavioral disengagement,* and worst reported general health/psychological status. Previous studies had revealed the same outcomes, as behavioral disengagement and self-blame were significantly associated with mental and physical health (Lehavot 2012; Stanisławski 2019). Moreover, psychological symptoms and self-reported poorer physical health were associated with emotion-focused and avoidance coping strategies (Matheson et al. 2008; Stanisławski 2019).

The present study, up to now, is the first to provide an empirically and theoretically supported structure model of the BRIEF-COPE and also the first to show the association between self-reported health/psychological status and coping strategies in Ukrainian female refugees settled in the Czech Republic. However, some limitations should be highlighted. The use of online questionnaires restricted the participation of educated females with good digital skills. Therefore, additional analysis will be further conducted to triangulate the results including an analysis of in-depth interviews with Ukrainian female refugees in the Czech Republic. Future research should be included older females with low digital literacy. Additionally, self-reporting may have some degree of social desirability bias; however, some strategies were used in the present study to reduce social desirability bias such as anonymity, self-administered questionnaires, and forced-choice items.

Conclusion

Ukrainian female refugees from the present study used various coping strategies for adaptation in the Czech Republic. Most often they used effective active-coping strategies. Planning what to do and taking action to try to make the situation better was found to be among the most frequently used coping strategies. Among the emotion-focused coping strategies, there were two items used more often connected with accepting the situation and learning to live in new circumstances. Less likely that Ukrainian female refugees used avoidance coping strategies, only strategies to work or to do other activities to take their minds off things were used. The least frequently used coping strategies were substance use and making fun of the situation. There was found an association between ineffective coping strategies self-blame and behavioral disengagement with poor reported general health/ psychological status. Usage of an effective coping strategy such as positive reframing is associated with less likelihood to report poor emotions and psychological status.

The conclusion highlights that the usage of effective coping strategies could be protective to reduce negative psychological distress in this population. Also, these research outcomes could be used in the social policy of the Czech government to help Ukrainian female refugees to better adapt to the country and avoid worsening physical and mental health status. Social policies can reduce the negative physical and mental health outcomes associated with refugees' resettlement. First of all, poverty is a major social determinant of health, it is important to ensure adequate financial

support and work possibilities. Secondly, vital access to health care services, especially, specialized mental health care services for the most vulnerable refugee should be provided according to their needs. Thirdly, enable, Ukrainian refugees with appropriate education and work experience access to the job market in such areas as education, health care, and social services disregarding Czech language knowledge to serve the Ukrainian refugee population. Fourthly, it important is to provide more information about symptoms of mental disorders and effective coping strategies (health promotion) through NGOs, schools, social networks, and health care staff as well as about possibilities to access health care and social services when needed. Fifthly, grant free Czech language courses for refugees, in particular, there is a lack of courses for those who already know the Czech language at a basic level, but advanced knowledge is necessary to perform more skilled and better-paid work.

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