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ORIGINAL ARTICLE

COPING WITH STRESS DURING SUCCESSIVE PHASES OF THE COVID-19 PANDEMIC IN POLAND: A PSYCHOMETRIC PERSPECTIVE

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Introduction: The study reported in this article aimed to investigate differences in stress appraisal, coping strategies, and subjective well-being across various phases of the COVID-19 pandemic in Poland. The theoretical basis for the presented research was the transactional theory of stress and coping, as proposed by Richard Lazarus and Susan Folkman. For the subjective assessment of well-being by the respondents, the approach adopted was based on the frameworks proposed by David P. Goldberg and Aaron Beck.

Method: The study was conducted using the CAWI method. The participants included 200 individuals recruited during three time periods corresponding to the phases of the pandemic in Poland, between March 20 and May 30, 2020. The authors utilized the COPE Inventory to determine coping strategies, the SAQ to assess stress appraisal, and the GHQ-30 and BDI inventories to measure subjective well-being.

Results: The results indicate statistically significant differences in the use of selected coping strategies and in the levels of subjective well-being depending on the phase of the pandemic in Poland.

Conclusions: Our findings provide insights into the process of coping with the COVID-19 pandemic in Poland and may be of value for public health service.

Keywords: coping strategies, psychological stress, mental health, SARS-CoV-2, pandemic, COVID-19

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INTRODUCTION

Epidemics and pandemics, including the current SARS-CoV-2 pandemic, are characterized by a specific progression [2]. Each stage presents challenges [15] that result in changes to the organization of social life in in affected or threatened countries. The SARS-CoV-2 pandemic also resulted in a decision to impose certain social life-related measures (restrictions) in Poland, where a state of epidemic emergency was announced on March 14, 2020, followed by a state of epidemic on March 20. Consequently, the daily functioning of Polish citizens underwent significant changes.

With the announcement of the state of epidemic emergency in Poland, all educational institutions , including universities, schools, nursery schools, day care centers, were the first to be closed. Caregivers were required to look after young children on their own while, if possible, working remotely from home. The operations of cultural institutions, such as theaters, concert halls, museums, and cinemas, were suspended. Retirement homes and senior citizens' clubs were closed. The declaration of the state of epidemic, which lasted from March 20 until April 16, 2020, introduced additional restrictions , primarily affecting the freedom of movement. During this period, citizens were prohibited from leaving their homes except for purposes, such as going to work, grocery stores, drugstores, or pharmacies, or providing assistance to others. Children aged 13 or younger were prohibited from going out without their parents, and schools transitioned to remote learning. Attendance at church services was limited to a maximum of five individuals. Apart from suspending the activities of shopping centers, restaurants, hotels, hairdressing salons, or libraries, the authorities restricted access to parks and forests as well. Wearing face masks outdoors became mandatory, along with maintaining distance and practicing hand disinfection. The country's borders were closed to foreigners, and international passenger flights and rail connections were suspended until April 13, with he possibility of extending this date if necessary. The Polish government introduced a nationwide lockdown.

On April 16, 2020, the authorities announced a plan for the gradual lifting the restrictions. As part of the plan, parks and forests were reopened first. Between April 20 and May 3, the maximum number of people allowed in places of religious worship was increased to 1 person per 15 square meters, and children aged 13 or younger were again permitted to go outdoors without parental supervision. Between May 4 and 30, further restrictions were loosened. Childcare facilities, shopping centers, libraries, and hotels resumed operations, and physiotherapists returned to work. In mid-May, hairdressing salons and restaurants reopened, subject to sanitary protocols. Sports halls and stadiums reopened, and children in grades 1–3 of elementary school returned to classroom learning. Further easing of restrictions was planned after May 30 , including lifting the obligation to wear a face mask outdoors and removing the limit on the number of people simultaneously allowed in shops [8].

From the psychological perspective, both a state of epidemic emergency and a state of epidemic, with the associated restrictions on social life, can be considered as factors (events) causing psychological stress [10,12]. According to the transactional theory of stress and coping proposed by Richard Lazarus and Susan Folkman [10], such situations confront individuals with specific demands — both external and internal — that are perceived as exceeding the individual's coping abilities or requiring significant effort to manage. These evaluations may focus either on the harm or loss already experienced or the expected results of current coping efforts. In the former case, the stressful situation (i.e., the pandemic) is categorized as "harm". In the latter case, it is classified as either a challenge or a threat. The "challenge" category is associated with positive expectations about the outcomes of the coping strategies adopted, whereas the "threat" category is associated with negative expectations. All the aforementioned categories imply a stressful nature of the event, which induces emotional tension, leads to a decrease in subjective psychological well-being, and triggers the process of coping with situational demands. Coping behaviors involve cognitive and/or behavioral efforts aimed at managing the stressor, either by reducing its impact or eliminating it, and/or reducing the emotional tension experienced by the individual [12]. Given the dynamic nature of both the state of epidemic emergency and the state of epidemic, it can be expected that their successive stages will result in changes in stress appraisal and, consequently, in coping behaviors and the emotions experienced. This implies a change in the subjective well-being of individuals facing the pandemic. The changes observed — at the levels of appraisals, emotions, and coping behaviors — will reflect the gradual adaptation to the dynamic conditions of the epidemic/pandemic [11,12].

The assumptions of the transactional theory of stress and coping are supported by numerous empirical research reports [1,20,21,22,24]. However, there is a lack of studies that directly examine the process of coping during an epidemic — specifically, studies that describe the dynamics of the changing behaviors of individuals experiencing successive phases of an epidemic. The majority of the studies cited focus on describing coping behaviors, primarily during lockdowns [1,21,22,24], without addressing specific stages of the epidemic and verifying the existence of differences in coping behaviors associated with them.

The situation is similar in the case of categorizing an epidemic as a stressful event and assessing subjective psychological well-being. While previous studies [6,9,13,14,17,22,24] examined the level of epidemic-related stress and the subjective state of mental health (well-being), they did not investigate whether participants categorize the epidemic as a threat or as a challenge. Moreover, they did not focus on identifying the differences in appraisal and the level of well-being between various stages of the epidemic. What is more, most existing research focused on health care employees and on their functioning during and after epidemics, for instance, as shown in the extensive review by Preti et al. [20]. However, there are few studies devoted to ordinary individuals from the general population [1,21,22,24].

Studies focusing on epidemic outbreaks worldwide and on the associated behaviors [6,9,13,17] report a significant increase in the levels of stress and anxiety, as well as the presence of severe depressive symptoms during this period. Data collected by Lai et al. [9] indicate that during the COVID-19 outbreak in China in 2020, nearly 70% of physicians and nurses reported elevated stress levels. Nearly half of the subjects exhibited symptoms of depression, 40% reported elevated anxiety levels, and 30% reported insomnia. Similar findings were reported by other authors, who conducted research on the SARS outbreak in China [13], and during the peak of the early phase of the 2003 SARS outbreak in Canada [17]. Notably, Lee et al. [13] observed no significant difference in stress levels between health care employees and people working outside the healthcare sector. This difference only became significant one year after the outbreak.

Further studies focusing on lockdown periods confirm a decline in respondents' well-being and their various coping strategies used during that period [1,21,24]. For example, research conducted during the lockdown caused by COVID-19 in Wuhan, China [24], indicates that subjects predominantly used strategies focused on problem-solving. Less frequently employed strategies included help-seeking, rationalization, fantasizing, avoidance, and self-blame for the adverse situation. Moreover, Zhou et al. [24] found that strategies focused on problem-solving and seeking social support were associated with better psychological well-being and mental health towards the end of the lockdown. Whereas, the self-blame and avoidance strategies, such as fantasizing and drinking or smoking, were linked to higher levels of depression, emotional depletion (feeling drained, numb, and empty), and sense of isolation (loneliness, rejection, hopelessness). The results reported by Zhou et al. [24] likely stem from the respondents' appraisal of the epidemic situation as threatening. This is supported by the fact that Wuhan was identified as the epicenter of the COVID-19 outbreak, and the risk of infection was significantly higher for its residents compared to for the general population of China or other countries.

In a separate study [21], examining the lockdown during the COVID-19 pandemic in the state of Victoria, Australia, respondents reported employing coping activities including behaviors that, in accordance with the transactional theory of stress, can be classified as reducing emotional tension. These included physical exercise, listening to music, reading books, spending time with children and partners, gardening, calling friends and family, pursuing hobbies, house cleaning, more frequent cooking and eating, increased alcohol consumption and cigarette smoking than before the pandemic, as well as more frequent prayer and connecting with God. These findings [21] may result from the fact that respondents classified their situation as not particularly stressful, which seems to be supported by the low levels of fear of COVID-19 reported in the same study.

Another study [1] investigating the effects of restrictions imposed during the COVID-19 pandemic in Saudi Arabia, indicates a positive relationship between elevated levels of anxiety, stress, and depression and the use of active avoidance and religious/denial coping strategies. Notably, the most frequently mentioned factors contributing to stress during isolation included being separated from family, sleeping problems, worrying about the future, and experiencing anger due to uncertainty [1].

The results of research conducted in the phase of loosening restrictions [10] carried out in April 2020, in Texas, USA, indicated moderate levels of

stress, anxiety, and depression in participants due to the COVID-19 pandemic. The study further revealed that the level of stress was associated with the use of coping strategies, such as mental disengagement, denial, substance use, behavioral disengagement, venting, planning, religious coping, and self-blame. Additionally, the findings indicated that higher levels of well-being among participants were related to the use of strategies, such as active coping, denial, emotional social support, humor, religious coping, and self-blame.

The current COVID-19 pandemic is an exceptional situation due to its widespread impact on the functioning of societies worldwide. At the psychological level, as suggested by the research results cited above, this situation is associated with elevated stress and the necessity of engaging in coping behaviors, which affects the well-being and subjective state of health of those experiencing it. Given the dynamic nature of the situation, this raises the central question that this publication seeks to address: Do cognitive appraisals, coping behaviors, and well-being of Polish respondents indeed change with the successive phases of the pandemic? The aim of the research reported in this article was to determine if there were differences in appraisal, coping strategies, and well-being between different phases of the pandemic, consistent with Lazarus and Folkman's [10-12] transactional approach to stress and coping. Furthermore, it is important to note that knowledge about the dynamics of ordinary individuals' behaviors during the successive stages of the pandemic may be helpful both to medical service providers and to governmental decision-makers responsible for public safety.

METHOD

Participants

The study group was selected using a non-random sampling method focused on selecting typical units. This approach involved choosing the most representative individuals from the general population by adopting average units. These "average" units, due to their representativeness, did not require a large sample size to capture the characteristics of the examined pandemic phenomenon effectively. The study included 200 participants with a mean age of M = 37.43 years; 56.5% were women, 41% were men, and 2.5% did not indicate their gender. The research was conducted online and targeted individuals in home isolation.

Procedure

Data were collected using anonymous questionnaires in a cross-sectional study conducted using Computer-Assisted Web Interview (CAWI) using LimeSurvey-based platform (version 3.22.12+200406), during the following periods: (1) March 20 to April 16, 2020 (the first phase of research, which coincided with the declaration of the state of epidemic in Poland; N = 50); (2) April 17 to May 3, 2020 (the second phase of research, corresponding to the first stage of lifting the restrictions; N = 75); (3) May 4 to 30, 2020 (the third phase of research, conducted during the second stage of lifting the restrictions; N = 75). The participants were tasked with completing the survey and the questionnaires described below, with the study procedure requiring approximately 30 minutes on average. Participation was fully voluntary and anonymous, and no identifiable personal data were collected. The participants were free to withdraw from the study at any time without any consequences and had an option of automatically removing the responses already submitted. They were also informed that the aggregated results of the study would be used solely for research purposes.

Measures

To measure the appraisals of the stressful event, the Stress Appraisal Questionnaire (SAQ) [23] was used. The questionnaire is available in two versions: Version A, which measures current cognitive appraisal, and Version B, which assesses respondents' disposition for evaluating stressful situations in a specific manner. This study used Version A of the SAQ. Participants were instructed to appraise the pandemic situation.

The SAQ consists of 35 adjectives that can be used to describe situations involving stress. Participants ate how accurately each adjective describes their experience using a 4-point scale (from 0 to 3). The questionnaire measures the following cognitive appraisals: Threat, Harm/Loss, Challenge–Activity, and Challenge–Passivity. A high score on each scale indicates a high level of a particular appraisal of the situation. In a standardization study, the authors of the measure found that the values of Cronbach's alpha for Version A ranged from .71 (Challenge–Activity) to .90 (Threat). The values of the Guttman statistic ranged from .65 (Challenge–Activity) to .83 (Threat). The validity of Version A was supported by factor analysis (construct validity) and by correlations of SAQ scores with measures of emotional states during stressful situations. These results are consistent with expectations.

To determine respondents' stress coping strategies, the COPE Inventory was used. This measure developed by Charles S. Carver, Michael F. Scheier, and Jagdish K. Weintraub was adapted into Polish by Juczyński & Ogińska-Bulik [7]. The inventory consists of 60 items, which respondents rate on a 4-point scale. The COPE Inventory provides scores on 15 coping strategies: active coping, planning, seeking instrumental support, seeking emotional support, suppression of competing activities, turning to religion, positive reinterpretation and growth, restraint, acceptance, focus on and venting of emotions, denial, mental disengagement, behavioral disengagement, alcohol and substance use, and humor. The instruction provided with the measure was modified in such a way that participants assessed their behavior in the context of the pandemic situation. The reliability of the COPE Inventory, assessed using the Crobnach's alpha coefficient for its specific scales, ranged from .48 (for Mental Disengagement) to .91 (for Alcohol and Substance Use). The validity of the measure, tested by correlating the COPE scores with scores on other measures of coping strategies or related constructs, was deemed acceptable.

To assess the subjective state of health (i.e., well-being), the General Health Questionnaire (GHQ-30) — adapted into Polish by Frydecka et al. [4], and the Beck Depression Inventory (BDI) — adapted into Polish by Parnowski & Jernajczyk, [19], were used. Developed by David P. Goldberg, the GHQ is a screening tool used to assess the state of mental health in adults within the general population [5]. It measures the level of nonpsychotic mental disorders, with the aim of identifying individuals in at significant risk of developing such disorders. Several versions of the GHQ have been developed (GHQ-12, GHQ-20, GHQ-28, GHQ-30, GHQ-60). In the present study the GHQ-30 was used. This version allows respondents to evaluate their overall mental health (the total score is the sum of all item scores) and three dimensions of their psychological functioning: anxiety and depression, interpersonal relations, and general functioning. The questionnaire consists of 30 questions, which respondents rate using a 4-point scale (from 0 to 3); Cronbach's alpha for the total score is .97. The Beck Depression Inventory (BDI) consists of 21 questions that describe various symptoms of depression. Respondents rate their answers on a 4-point scale. The inventory allows for a quantitative assessment of the level of depression. Its original version has verified and acceptable psychometric properties [3]. The Polish adaptation demonstrates similarly acceptable psychometric properties [19].

Statistical analyses

The analyses included the results for 200 participants (50 from the first phase, 75 from the second phase, and 75 from the third phase of the study). The study was cross-sectional. The distributions of results in each phase of the pandemic were analyzed. Since not all variables in each phase proved to have a normal distribution, the medians of the collected results were compared using the Kruskal–Wallis *H* test with Bonferroni correction. Follow-up analyses were conducted, and the sizes of the effects observed (E^2, epsilon squared) were computed. In cases where the distributions of variables differed significantly between the compared groups in terms of shape, medians were also referenced in the discussion of results [18].

RESULTS

The results of analyses concerning cognitive appraisals of the successive phases of the pandemic suggest significant differences in the categories of threat ($H(2) = 12.320$, $p = .002$, $E^2 = .062$, 95% CI [.019, .143]) and challenge–activity ($H(2) = 6.236$, $p = .044$, $E^2 = .031$, 95% CI [.004, .101]). The results of Dunn–Bonferroni post hoc analysis suggest that the pandemic situation was categorized as a threat significantly more often in the first phase ($M_{Phase1} = 15.84$, $Me_{Phase1} = 15.2$, $SD_{Phase1} = 7.09$) that in the other two ($M_{Phase2} = 15.2$, $Me_{Phase2} =$

Tab. 1. Significance of differences with respect to cognitive appraisal between the three pandemic phases in Poland.

Variable	Phase I		Phase II		Phase III		H Kruskal--Wallis	p-value	Effect size (E^2) (interval)	Adj. p (post hoc tests)		
	M (SD)	Me	M (SD)	Me	M (SD)	Me				I vs II	I vs III	II vs III
Threat	15.84 (7.09)	15.53	15.2 (6.44)	16.02	12.07 (6.5)	10.98	12.320	0.002	0.062 (0.019, 0.143)	0.006	0.012	1.000
Challenge–activity	8.64 (2.8)	8.50	8.72 (3.14)	9.00	9.65 (3.41)	10.00	6.236	0.044	0.031 (0.004, 0.101)	1.000	0.113	0.090
Challenge–passivity	5.24 (3.25)	5.00	5.15 (2.68)	5.00	5.59 (2.92)	6.00	1.206	0.547				
Harm/loss	6.82 (3.1)	7.00	6.68 (3.33)	7.00	5.71 (3.56)	5.00	4.368	0.113				

Tab. 2. Significance of differences with respect to coping strategies between the three pandemic phases in Poland.

Variable	Phase I		Phase II		Phase III		H Kruskal--Wallis	p-value	Effect size (E^2) (interval)	Adj. p (post hoc tests)		
	M (SD)	Me	M (SD)	Me	M (SD)	Me				I vs II	I vs III	II vs III
Active coping	9.94 (1.95)	10.00	11.37 (1.86)	11.00	10.75 (1.97)	11.00	14.596	0.001	0.073 (0.025, 0.168)	p < 0,001	0.108	0.165
Planning	10.76 (2.42)	11.00	11.29 (2.44)	12.00	10.52 (2.37)	11.00	4.724	0.094				
Seeking instrumental support	10.9 (2.4)	11.00	10.32 (2.52)	11.00	10.61 (2.15)	11.00	0.543	0.762				
Seeking emotional support	11.64 (2.94)	12.00	10.17 (2.98)	11.00	9.85 (2.67)	10.00	12.608	0.002	0.063 (0.014, 0.152)	0.034	0.001	0.823
Suppression of competing activities	9.86 (2.11)	10.00	10.28 (2.19)	10.00	10.2 (1.67)	10.00	2.238	0.327				
Turning to religion	8.78 (4.29)	8.00	8.16 (3.97)	7.00	9.31 (3.31)	9.00	4.620	0.099				
Positive reinterpretation and growth	11.36 (2.51)	12.00	11.55 (2.49)	12.00	11.72 (2.3)	12.00	0.905	0.636				
Restraint	10.26 (2.04)	10.00	10.25 (1.88)	10.00	9.79 (2.08)	10.00	1.749	0.417				
Acceptance	12.14 (2.51)	12.00	11.72 (2.61)	12.00	11.56 (2.21)	12.00	2.746	0.253				
Focus on and venting of emotions	10.66 (2.97)	12.00	9.65 (2.73)	10.00	9.27 (2.14)	9.00	9.961	0.007	0.05 (0.008, 0.146)	0.081	0.005	0.918
Denial	6.52 (1.87)	7.00	6.09 (1.99)	6.00	6.59 (1.92)	6.00	3.664	0.160				
Mental disengagement	9.52 (2.18)	10.00	8.64 (1.7)	8.00	7.96 (1.97)	8.00	17.517	p < 0,001	0.088 (0.033, 0.189)	0.067	p < 0,001	0.103
Behavioral disengagement	7.46 (2.22)	8.00	6.71 (2.12)	7.00	6.25 (1.63)	6.00	10.187	0.006	0.051 (0.013, 0.141)	0.004	0.091	0.776
Alcohol and substance use	6.34 (2.74)	5.00	5.55 (2.2)	5.00	7.21 (2.67)	7.00	20.674	p < 0,001	0.104 (0.043, 0.2)	0.436	0.030	p < 0,001
Humor	8.06 (3.39)	7.00	6.8 (2.8)	6.00	7.81 (2.68)	8.00	7.310	0.026	0.037 (0.005, 0.115)	0.086	1.000	0.050

16.02, SD_{Phase2} = 6.44 and M_{Phase3} = 12.07, Me_{Phase3} = 10.98, SD_{Phase3} = 6.5, respectively). For the category of challenge–activity, post hoc tests yielded non-significant results (Table 1).

Further results of analyses (Table 2) indicated two statistically significant differences in seven (out of 15) coping strategies, namely: active coping (*H*(2) = 14.596, p = .001, E^2 = .073, 95% CI [.025, .168]), seeking emotional support (H(2) = 12.608, p = .002, E^2 = .063, 95% CI [.014, .152]), focus on and venting of emotions (H(2) = 9.961, p = .007, E^2 = .05, 95% CI [.008, .146]), mental disengagement (H(2) = 17.517, p < .001, E^2 = .088, 95% CI [.033, .189]), behavioral disengagement (H(2) = 10.187, p = .006, E^2 = .051, 95% CI [.013, .141]), alcohol and substance use (H(2) = 20.674, p < .001, E^2 = .104, 95% CI [.043, .20]), and the use of humor as a strategy of coping with stress (H(2) = 7.310, p = .026, E^2 = .037, 95% CI [.005, .115]).

Based on Dunn–Bonferroni analyses, it was found that during the first phase of the pandemic the participants reported a significantly higher level of seeking emotional support (M_{Phase1} = 11.64, Me_{Phase1} = 12, SD_{Phase1} = 2.94) than in the remaining two phases (M_{Phase2} = 10.17, Me_{Phase2} = 11, SD_{Phase2} = 2.98 and M_{Phase3} = 9.85, Me_{Phase3} = 10, SD_{Phase3} = 2.67, respectively) and that they rated focus on and venting of emotions (M = 10.66, Me = 12, SD = 2.97), mental disengagement (M = 9.52, Me = 10, SD = 2.18), and behavioral disengagement (M_{Phase1} = 7.46, Me_{Phase1} = 8, SD_{Phase1} = 2.22) higher than during the third phase.

During the second phase of the pandemic, participants rated active coping (M_{Phase2} = 11.37, Me_{Phase2} = 11, SD_{Phase2} = 1.86) significantly higher than in the first phase (M_{Phase1} = 9.94, Me_{Phase1} = 10, SD_{Phase1} = 1.95).

The results also indicate that in the third phase of the pandemic participants rated the level of alcohol and substance use (M_{Phase3} = 7.21, Me_{Phase3} = 7, SD_{Phase3} = 2.67) significantly higher than in the remaining two phases (M_{Phase1} = 6.34, Me_{Phase1} = 5, SD_{Phase1} = 2.74 and $_{MPhase2}$ = 5.55, Me_{Phase2} = 5, SD_{Phase2} = 2.20, respectively) and that they rated the use of humor to cope with stress (M_{Phase3} = 7.81, Me_{Phase3} = 8, SD_{Phase3} = 2.68) higher than participants in the second phase of the pandemic (M_{Phase2} = 6.80, Me_{Phase2} = 6, SD_{Phase2} = 2.80).

Measurement using the GHQ-30 revealed no statistically significant differences between the

Tab. 3. Significance of differences with respect to well-being level between the three pandemic phases in Poland.

Variable	Phase I		Phase II		Phase III		H Kruskal--Wallis	p-value	Effect size (E^2) (interval)	Adj. p (post hoc tests)		
	M (SD)	Me	M (SD)	Me	M (SD)	Me				I vs II	I vs III	II vs III
Total score[1]	49.57 (12.70)	47	45.53 (10.52)	43.46	45.38 (10.77)	43.98	3.678	0.159				
Anxiety and depression[1]	22.93 (8.12)	21.00	20.89 (6.88)	20.00	20.8 (6.77)	20.00	1.919	0.383				
Interpersonal relations[1]	8.47 (1.82)	8.00	8.2 (1.82)	8.00	8.07 (1.74)	8.00	1.534	0.464				
General functioning[1]	18.17 (4.5)	17.01	16.72 (3.2)	16.03	16.52 (3.69)	16.03	4.420	0.110				
Beck depression index a[2]	11 (9.85)	8.50	7.31 (7.97)	4.00	6.47 (7.47)	3.00	9.659	0.008	0.049 (0.01, 0.134)	1.000	0.007	0.058

Note. Well-being was measured using the GHQ-30 and BDI scales. [1] The GHQ-30 scale provides an overall assessment of an individual's mental health (Total Score - sum of all items) and mental functioning on 3 dimensions: anxiety and depression; interpersonal relations; and general functioning. [2] The BDI scales determine the severity of depression.

pandemic phases in the general level of subjective state of health or any of its dimensions. By contrast, the subjectively evaluated state of mental health, measured with the BDI, proved to vary significantly depending on the phase ($H(2) = 9.659$, $p = .008$, $E^2 = .049$, 95% CI [.01, .134]). Dunn–Bonferroni post hoc analysis revealed that the only significant difference between the pandemic phases were higher scores on this scale in the first phase ($M_{Phase1} = 11$, $Me_{Phase1} = 8.50$, $SD_{Phase1} = 9.85$), however, only in comparison to the third phase ($M_{Phase3} = 6.47$, $Me_{Phase3} = 3$, $SD_{Phase3} = 7.47$). The results of these analyses, however, should be interpreted with a great deal of caution due to the high diversity of BDI values in each phase of the study (Table 3).

DISCUSSION

The research presented in this publication was descriptive and aimed to examine whether differences existed in coping behaviors, cognitive appraisal of the current situation, and well-being between different phases of the pandemic in Poland. These phases were arbitrarily defined and reflected the restrictions on social and economic life imposed and lifted by the authorities, which impacted the daily functioning of Polish citizens. The results were interpreted within the framework Lazarus and Folkman's transactional theory of stress[10-12], which posits that the changing external conditions (i.e., the successive phases of the pandemic) would be accompanied by changes in the appraisals, behaviors, and well-being of individuals affected by the pandemic. In the context of this theory, the observed differences may attest to adaptation to the dynamically changing conditions.

As expected, the results of statistical analysis revealed significant differences in the threat appraisal between the phases of the pandemic. The appraisal of the pandemic situation as threatening was significantly higher in the first phase than in the second and the third. This means that, as the pandemic progressed, its appraisal as a stressful situation exceeding individual coping abilities and associated with expecting negative outcomes of actions increasingly declined. The participants continued to perceive the pandemic as a threat to their well-being, though to a significantly lesser extent than at its beginnings. This result may suggest adaptation to the pandemic conditions. Initially, the pandemic represented a new, unpredictable and ambiguous situation [10], which led to its appraisal as stressful and threatening. Furthermore, the restrictions on social life that changed the daily functioning of Polish citizens may have intensified the belief about the impossibility of coping with the situation. Over time, knowledge about the pandemic increased and the restrictions in Poland were eased during the study period, which may have contributed to a decrease in the sense of threat compared to the beginning of the pandemic (i.e., to its first phase). It is worth noting that effect sizes ranged from small to large ($E2 = .062$, 95% CI [.019, .143]), and the result corresponded with those concerning appraisal classified as challenge–activity, a category that became slightly more prominent towards the end of our study. This effect, however, should be viewed with great caution, as it did not reach the level of statistical significance in post hoc tests (see Table 1).

Nevertheless, the results correspond with those of previous studies [6,9,17], conducted in various phases of the pandemic worldwide and investigating the level of well-being. For instance, in the study Lai et al.[9] cited above, conducted during the outbreak of COVID-19 in China, medical personnel reported elevated stress levels, depressive symptoms, and elevated anxiety levels. Based on

the studies by Lazarus and Folkman [10-12] it can be assumed that the outbreak of every epidemic or pandemic is characterized by high novelty, unpredictability, low controllability or total uncontrollability of the situation, and high uncertainty about the outcomes of the coping strategies employed. It is therefore possible that the findings reported by Lai et al.[9] stemmed from the categorization of COVID-19 outbreak as a strongly stressful and threatening situation, just like in the first phase of this study. By contrast, other research, conducted during the second A/H1N1 outbreak in Greece [6], in a situation that can be described as relatively familiar, predictable, and controllable, revealed a significant deterioration of mental health only in 7% of health care employees. It can be inferred that the situation was not so strongly stressful and threatening, which is also visible in the results of this study in the third phase, with threat appraisal significantly lower than during the pandemic outbreak and the lockdown (i.e., in the first and second phases).

The results of the presented research on the differences in coping strategies employed during various phases of the pandemic indicate significant differences in the frequency of the following behaviors: active coping, seeking emotional support, focus on and venting of emotions, mental disengagement, behavioral disengagement, alcohol and substance use, and humor.

The results indicate an increase in the use of active coping strategies between the first and second phases of the COVID-19 pandemic in Poland. At the same time suggesting a decrease in the use of selected strategies that (according to the transactional approach to stress and coping) are aimed at reducing emotional tension. These findings may be related to the decrease in the level of stress, which corresponds with the results concerning the appraisal of the pandemic as a threat in this study. The strategies focused on reducing tension, whose use decreased between the first and the second phase and between the first and the third phase, include seeking emotional support, focus on and venting of emotions, mental disengagement, and behavioral disengagement.

Based on the analyses performed, it has been observed that participants reported increasingly frequent alcohol and substance use as the pandemic progressed. This difference is significant in comparisons between the first and the third phase, and between the second and the third phase. Lastly, the use of humor as a coping strategy became more frequent in the third phase compared to the second. Although somewhat unexpected, these findings may reflect the next stage of adaptation, and as they are strategies reducing emotional tension, they may be signs of coping with helplessness and/or boredom, which should be verified in future research, given the descriptive nature of the present study. Additionally, it is worth noting that the effect sizes for results that concern coping in the successive pandemic phases ranged from small to large.

Other researchers observed similar coping behaviors [1,21,24], though they primarily investigated functioning during lockdowns, which corresponds to the first and second phase of the pandemic in Poland described herein. During the COVID-19 pandemic in Wuhan respondents mostly reported the use of strategies focused on problem solving- and seeking help. They also used various avoidance strategies, such as rationalization, fantasizing, self-blame, or drinking and smoking. The first two strategies promoted better well-being towards the end of the lockdown, while the remaining ones increased the level of depression, depletion, and sense of isolation [24]. Since the risk of COVID-19 infection was significantly higher in Wuhan than in the general population of China or other countries, it can be assumed that the results reported by Zhou et al.[24] illustrate coping behaviors in a highly stressful situation appraised as a threat. Other studies [9], in which the level of COVID-19 pandemic fear was low, show mainly the use of avoidance strategies, which are referred to in the approach proposed by Lazarus and Folkman [10-12] as reducing emotional tension. These coping behaviors included physical exercise, listening to music, reading books, spending time with children and partners, gardening, calling friends and family, and numerous other strategies, as well as drinking alcohol and smoking; these findings correspond with the results of the third phase of the present study, in which threat appraisal was the lowest.

The results concerning the level of well-being in the successive phases of the COVID-19 pandemic in Poland proved to complement the findings on cognitive appraisals of situations and coping with pandemic stress. In the case of Beck depression index [3,19], the results of the present study indicate a significant decrease in depressive symptoms between the first and the third phase, which means that respondents' well-being improved with the successive phases of the pandemic. On the one hand, this result may indicate adaptation to and better coping with the new situation, on the other, it may merely reflect the reaction to the current situation following the declaration of a state of

epidemic, which caused a brief deterioration of mood in the first phase of this study. The reported depression symptoms were mild in the first phase, and in the remaining two phases of the study they did not exceed the cut-off point distinguishing healthy subjects from those suffering from depression [19]. As regards the GHQ-30 scores, interpreted with reference to the relevant cut-off points [16], they indicate significantly lowered well-being and no improvement in this respect in the successive phases of the study. These results suggest no clear improvement of well-being throughout the duration of the study, however, they indicate no serious depressive disorders with the progression of the pandemic, either. Most likely, this result is associated with the appraisal of the situation as threatening, which was predominant in all phases of the study, and with the persisting sense of uncertainty it was accompanied by. The results of the present study are similar to those of other studies [6,9,13,17,20], which revealed a deterioration of subjective well-being during lockdowns caused by pandemics and during pandemics in general.

To summarize the findings of this study, it can be concluded that with the changing conditions, as the pandemic in Poland progressed through its successive phases, cognitive appraisals and coping behaviors also changed significantly. This is consistent with the approach proposed by Lazarus and Folkman [10-12]. Also consistent with it are the results concerning the respondents' subjectively assessed well-being, which corresponded with the appraisals and strategies adopted during the study. It is important to note that the present study was descriptive and that its findings illustrate the ways of adapting to the COVID-19 pandemic conditions in Poland from March 20 to May 30, 2020. Given the sample size and the cross-sectional character of the study, the results should be interpreted with caution. However, as the respondents were members of the general population, the results may prove to be of value to medical service providers and teams responsible for ensuring public safety in similar situations.

CONCLUSION

The present study indicates statistically significant differences in stress appraisal, in the use of selected coping strategies, and in the level of subjective well-being depending on the phase of the pandemic in Poland. The appraisal of the pandemic in terms of psychological stress changed over time. In the first phase, the appraisal of the pandemic as a threat was more prevalent than in subsequent phases. The prevalent coping strategies were: seeking emotional support, focus on and venting of emotions, mental disengagement, and behavioral disengagement. In the second phase, scores were the highest for active coping with the pandemic stress compared to the first phase. Interestingly, in the third phase, the participants rated substance use and humor as coping strategies higher compared to the previous two phases. Depressive symptoms were the highest in the first phase of the pandemic. The results illustrate the dynamics of coping with stress during the early phases of the COVID-19 pandemic in Poland. They also correspond with the observations reported by other authors who explored the issues of individual behavior during lockdowns introduced due to a state of epidemic or pandemic. In future research, the data collected in the present study could be used to explain the mechanism behind specific behaviors.

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