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Worry and stress coping strategies among youth: the mediating role of psychological resilience

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ABSTRACT

Purpose
The purpose of this study was to determine the mediating role of psychological resilience in the relationship between worry and stress coping strategies used by young people.

Method
The study involved 404 individuals aged 15–20 years (M = 18.23, SD = 1.29). In order to assess worry, we used the Penn State Worry Questionnaire for Children (PSWQ-C) by Chorpita. Psychological resilience was measured with the Polish SPP-18 scale by Ogińska-Bulik and Juczyński, and stress coping was assessed by means of the "How do you cope?" Scale (JSR) by Juczyński and Ogińska-Bulik.

Results
The results obtained suggest that resilience is a significant predictor of a correlation between worry and stress coping strategies, where mediation takes the form of suppression in relation to the strategies of active coping and social support seeking; for the emotion-focused strategy a partial mediation is observed.

Conclusion
Psychological resilience mediates the correlation between worry and stress coping, but the nature of this mediation is complex, and it varies depending on different coping strategies.

Keywords: worry, psychological resilience, coping strategies, mediation analysis, suppression

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Introduction

Worry is a common phenomenon and it affects, in a lesser or greater degree, every age group: from young children (Vasey et al., 1994) to elderly individuals (Janowski, 2011). The form and expression of worry evolves with age. Older children, for example, worry more but they have better opportunities for coping, and cognitive and verbal processing of the content of their worries (Carr & Szabo, 2015; Wilson & Hughes, 2011). The content of children's worry evolves too: from physical threats predominant in young children to older children worrying about social functioning and personal competence – finally, to anxiety related to psychological aspects of functioning in young people (Vasey et al., 1994), and – typically of adolescence – global concerns, such as climate change (Olaja, 2013) and the risk of nuclear war (Boyd et al., 1994).

From the scientific perspective, worry can be defined as a train of uncontrollable thoughts and images that give rise to negative emotions and affect the development and persistence of anxiety (Kelly & Miller, 1999). The worry process involves continual repetition of unproductive thoughts, characterized by anticipation of events that are unfavorable and undesirable for the individual (Donovan et al., 2016); therefore, the time perspective in worrying relates mainly to the future. Worry becomes pathological when it is too intense, too frequent, and uncontrollable (Borkovec et al., 1998). Clinically elevated worry is one of the essential characteristics of anxiety disorders (Esbjørn et al., 2015).

At this point it should be added that researchers used to disagree about the nature of worry: some authors identified it with anxiety, or more precisely, with its cognitive component (e.g., Nitschke et al., 2001; Oathes et al., 2008; O'Neill, 1985), others considered the two to be very similar phenomena (Zebb & Beck, 1998); now, it is believed that worry and anxiety are two interlinked constructs but not identical (Borkovec, 1994; Davey, 1994; Meyer et al., 1990). The latter position is supported by empirical studies showing relationships between anxiety and worry and other variables, such as a study by Gan et al. (2001), where intolerance of uncertainty was associated with worry (and depression), but not with anxiety. Davey's (1994) research is even more convincing, implying that correlations between worry and anxiety, on the one hand, with stress coping strategies on the other – active, cognitive and problem-focused coping – have different directions: they are positive for worry and negative for trait anxiety. Moreover, some researchers who used SEM proved that the connection between anxiety and worry is not bidirectional as the evident effect of worry on anxiety is contrasted with the lack thereof in the opposite direction. So worry causes anxiety, not the other way round. Levy and Guttman (1985) stated that people who worry about a thing can, but need not, feel anxious about it. Such individuals are called "worrying nonanxious subjects" or "nonanxious worriers") (Borkovec, 1994, p. 19). Worry is like a problem-solving strategy: in her thoughts, the person is preparing to deal with a difficulty, thanks to which the anxiety level can be lowered (Davey & Tallis, 1994; Tallis et al., 1991).

A negative view of the future, which is characteristic of worry, will affect the way stress is dealt with, in accordance with the phenomenological-cognitive

stress model developed by Lazarus and Folkman (Folkmanet al., 2000), but studies directly addressing this correlation are few. With respect to coping, researchers either refer to a specific kind of worry, for example, about contracting COVID-19 (e.g., Messman et al., 2022), heart diseases (Constans et al., 1999), or they examine generalized anxiety (e.g., Amjad & Bokharey, 2014) or other anxiety disorders (e.g., Baykan & Yargic, 2012) and their correlation with stress coping. A review of both research categories leads to the conclusion that worry/anxiety is associated with a variety of coping strategies. Avoidant strategies may be used, for example, by students worrying about their sleeplessness and coping by employing a cognitive avoidance strategy (Scotta et al., 2021); emotional strategies can be applied in coping with fear of COVID-19 (Ramos-Lira et al., 2020), and cognitive ones can be used, too (Sebri et al., 2021), with age playing a significant role in the latter two: younger children are less likely to use problem-focused strategies (Ojala, 2012).

The lack of unambiguous study results can be due to the fact that the relationship between worry and stress coping can be modified by other variables. Research to date has focused on cognitive variables, arguing for their mediating role in the relationship between worry and stress coping. Such a role is played by various cognitive meta-assumptions, for example, catastrophic thinking (Sugiura et al., 2013), intolerance of uncertainty (Groves et al., 2020), or cognitive avoidance (Kertz et al., 2015).

It seems important to search for other, non-cognitive factors that may influence the way a worrier copes with stress. From a theoretical point of view, mental resilience can be such a factor. It is a resource that helps an individual to effectively overcome the difficulties encountered (Ogińska-Bulik & Juczyński, 2011) through a flexible, adaptable and creative approach to adversity (Heszen, 2007). Resilient people are more likely to choose adaptive strategies, for example, active stress coping or positive reframing (Bulik & Zadworna-Cieślak, 2014; Trzeciecka, 2021), planning, and slightly less frequently seeking social support. Among young people, a negative correlation between resilience and the following strategies was observed: restraint, self-blame, denial, and religious coping (Ogińska-Bulik & Juczyński, 2011). As regards maladjusted youth, resilience was positively correlated with a task-oriented stress coping style (Nowakowski & Wróbel, 2021).

Psychological resilience also correlates with worry, mostly negatively (Pigati et al., 2022; Portillo-Reyes et al., 2022). It is a factor that facilitates anxiety disorder prevention (Chen et al., 2022).

The purpose of this study was to determine the mediating role of psychological resilience between worry and stress coping strategies used by young people. The novelty of this study here lies, first and foremost, in the fact that it explores the worry phenomenon, which is a rarely examined in Poland, just a handful of studies address worry in adults (cf. Gierus et al., 2018; Golędzinowska et al., 2018; Janowski, 2011; Janowski et al., 2009; Solarz & Janowski, 2013), and even fever deal with worry in children and youth, only four articles to date (Olszewski et al., 2016; Talik, 2022; Zalewska, 2021). Apart from the specific nature of the examined group, the novelty of our research also lies the research problem

set – so far, the relationship between worry and stress coping has not been analysed with psychological resilience as a mediator – hence the exploratory character of the presented research; therefore, answers were sought to these two research questions:

1. What is the relationship between worry and dispositional and situational stress coping strategies used by young people?
2. Does psychological resilience mediate the relationship between worry and dispositional and situational stress coping strategies used by young people?

Method

Subjects

The study involved 404 individuals aged 15–20 years ($M = 18.23$, $SD = 1.29$). The numbers of boys and girls were equal ($N = 202$). Most of the subjects were secondary school students (80.2%), some were university students (18.1%), and several were pupils of final grades of primary school (1.7%). Only 21.3% of the subjects were from a city (over 150 thousand inhabitants), the rest came from towns of 50–150 thousand (44.3%) and villages (34.4%). The vast majority of respondents grew up in a complete family (73%).

Measurement Tools

The research uses a questionnaire devised specifically for the purpose and three standard measurement tools: the SPP-18 Resilience Scale (Skala pomiaru prężności) by Ogińska-Bulik and Juczyński (2011), the "How do you cope?" Scale (Jak sobie radzisz? – JSR) by Juczyński and Ogińska-Bulik, and Chorpit's Penn State Worry Questionnaire for Children (PSQQ-C) (Polish translation by Talik).

The custom-made questionnaire includes questions about socio-demographic variables such as: gender, age, place of residence, type of school, and their family background.

The SPP-18 scale is used for measuring psychological resilience and its four components: 1) optimistic attitude and energy, 2) perseverance and determination, 3) sense of humor and openness to experience, 4) personal competences and negative affect tolerance. It consists of 18 items, assessed on a 5-point scale from 0 (*definitely no*) to 4 (*definitely yes*).The raw scores fall within a 0–62 range. The higher the score, the greater the level of resilience. The total resilience index can be converted into stens. The internal consistency of the scale is .82. The scale validity is very satisfactory. In this study, Cronbach's alpha coefficient for the whole scale is .90 (Ogińska-Bulik & Juczyński, 2011).

The JSR scale is used to examine ways of coping with stress used by school children and youth (aged 11–17). It has two parts with nine items each, both

measuring dispositional and situational ways of coping with difficult situations. In the first part, the subject relates to a standard, difficult situation, giving answers using a scale from *almost never* to *almost always*. In the second, the subject describes a difficult situation experienced over the last twelve months, rating their answers on a scale from *definitely no* to *definitely yes*. Both parts distinguish three stress coping strategies: active coping, emotion focus, seeking social support. The raw score ranges from 0 to 72 with the mean and standard deviation acting as function norms. In terms of reliability, Cronbach's alpha for the dispositional version was .86 for the entire scale, whereas values for the situational version were between .66 and .71 (Juczyński & Ogińska-Bulik, 2009). The scale validity is very satisfactory. In this research, Cronbach's alpha coefficient (reliability) for the dispositional stress coping scale is .79, whereas for situational stress coping it is .72.

Chorpita et al.'s (1997; Pestle et al.,2008) PSWQ-C (translated into Polish by Elżbieta Talik[1]) is used to measure worry in children and youth aged 8 years and above. It comprises 14 items, rated on a 4-point Likert scale from 0 (*never*) to 3 (*always*). Items 2, 7 and 9 are reverse-scored. The general score is within 0–42 range. Reliability, measured by Cronbach's alpha (internal consistency) is .89. Measurement validity was also confirmed by correlating it with the anxiety ($r = .68$, $p < .001$) and depression ($r = .53$, $p < .001$) scales of Spielberger's Trait Personality Inventory. In this study, Cronbach's alpha for the whole scale is .91.[2]

Procedure

The survey was conducted via the Polish Ariadna Research Panel in December 2021. Invitations to take part in the survey were e-mailed by Ariadna to eligible persons (young people aged 15–20 years) registered with the Ariadna database. The invitation contained information on the subject of survey and its duration. Filling in the questionnaires implied consent to participate in the survey. Participants completed individual online tests via the Ariadna platform. Next, a database containing raw scores was handed over to the author of this project. The Panel observes research ethical standards and the latest General Data Protection Regulation (see Ariadna, 2022).

Data Analysis Methods

In order to analyse the results, we used IBM SPSS (v. 28) software. The following statistical procedures were used: the Kolmogorov-Smirnov test to analyse the normality of variable distribution, correlation analysis, and mediation analysis with the PROCESS macro for IBM Statistics (v. 4.1).

[1] The Polish adaptation is still being developed.

[2] Sample items: "Many things make me worry" (3), "When I am under pressure, I worry a lot" (5), "Once I start worrying, I can't stop" (12).

Results

The standard normal distribution applied to only one variable – worry ($K\text{-}S = .04$, $p = .09$). Correlations were estimated with Spearman's rho coefficient (see Table 1).

Table 1

Spearman's Rho Coefficients of the Correlation Between Tested Variables

	Variables	1	2	3	4	5	6	7	8
1	Worry	–							
2	Psychological resilience	–.19**	–						
3	Active coping (dispositional)	.06	.30**	–					
4	Emotion focus (dispositional)	.40**	–.25**	.32**	–				
5	Social support seeking (dispositional)	.14**	.08	.45**	.36**	–			
6	Active coping (situational)	.09	.39**	.32**	–.02	.18**	–		
7	Emotion focus (situational)	.43**	–.13**	.08	.50**	.17**	.20**	–	
8	Social support seeking (situational)	.14**	.08	.45**	.36**	1.000**	.18**	.17**	–

Note. ** $p < .01$, * $p < .05$ ($N = 404$).

Numerous statistically significant correlations were found (Table 1). As regards the direct relationship between worrying (X) and coping with stress (Y), a positive correlation was confirmed with the emotion-based strategy, both in the dispositional ($r = .40$, $p < .01$) and situational ($r = .43$, $p < .01$) dimensions, and with social support seeking, also in the dispositional ($r = .14$, $p < .01$) and situational ($r = .14$, $p < .01$) dimensions. No significant correlation was found with the active stress management strategy. Worry correlates negatively with psychological resilience ($r = –.19$, $p < .01$). There were some significant positive correlations between resilience and active coping, both dispositional ($r = .30$, $p < .01$) and situational ($r = .39$, $p < .01$), and a negative correlation with emotion focus, also in the dispositional and situational dimensions, respectively ($r = –.25$, $p < .01$ and $r = –.13$, $p < .01$).

In order to determine the role of psychological resilience in the worry–stress coping relationship, a bootstrapped mediation analysis was used, which is immune to being non-compliant with normality of distribution (Hayes, 2018; Hayes & Preacher, 2014). Mediation was computed using the PROCESS macro procedure for IBM Statistics (v. 4.1). A simple mediation effect (Model 4) was chosen, in which the independent (explanatory) variable serving as a predictor (worry) is

related to the dependent (explained) variable (stress coping) mediated by a third variable (psychological resilience) (Figure 1). In order to estimate the significance of indirect effects, we used bootstrapping with 5.000 samples and adjusted confidence intervals (95% CI). Following recommendations, non-standardized regression coefficients were supplied – the values of each path (Hayes, 2018; Preacher et al., 2007).

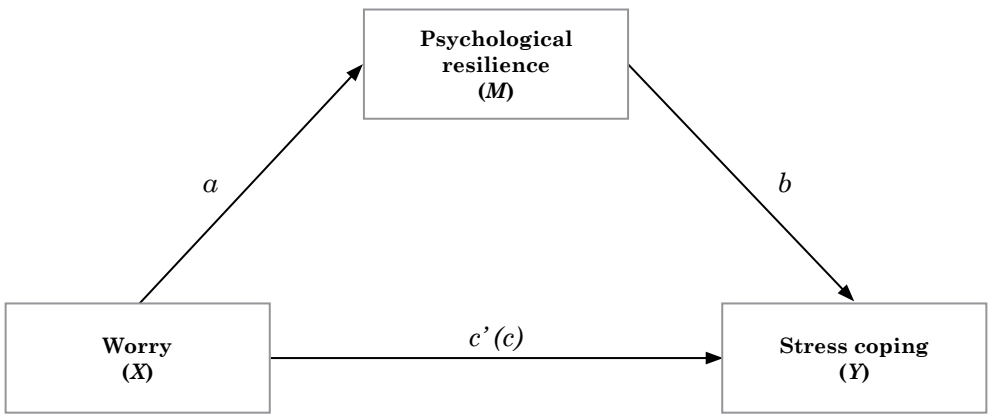

Figure 1. General Model of Mediating Role of Psychological Resilience Between Worry and Stress Coping.

Source: own study.

First, the relationship between worry and active stress coping was tested in the context of the mediating role of psychological resilience (paths $a^1 b^1 c'^1 c^1$ – see Figure 2, p. 120), despite the lack of a significant correlation between the predictor (worry) and the explained variable (active coping). This is in line with the latest recommendations for mediation analysis – that the relationship between the predictor and the dependent variable need not be significant (cf. Hayes, 2022).

In the model above, the classical suppression effect was obtained (Cichocka & Bilewicz, 2010), in which the initial relationship between the predictor and the dependent variable is insignificant (total effect) and only when the third variable is included – the mediator – the direct effect becomes statistically significant (c' = .03* > c = .01), the percentage of the explained variance also increases (from R^2 = .001 to R^2 = .104). The significance of the suppression effect was confirmed by bootstrapping – the confidence interval does not contain zero (*IE* = –.02; CI: –.0364 – –.0107).

As regards the situational strategy of active stress coping, the effect of classic suppression is also noticeable (c' = .04* > c = .01). It is statistically significant (*IE* = –.03; CI: –.0390 – –.0129) and related to an increase in the explained variance after the introduction of a mediator (from R^2 = .002 to R^2 = .14).

Different results were obtained for the emotion-focused strategy (Figure 2 – paths $a^2 b^2 c'^2 c^2$).

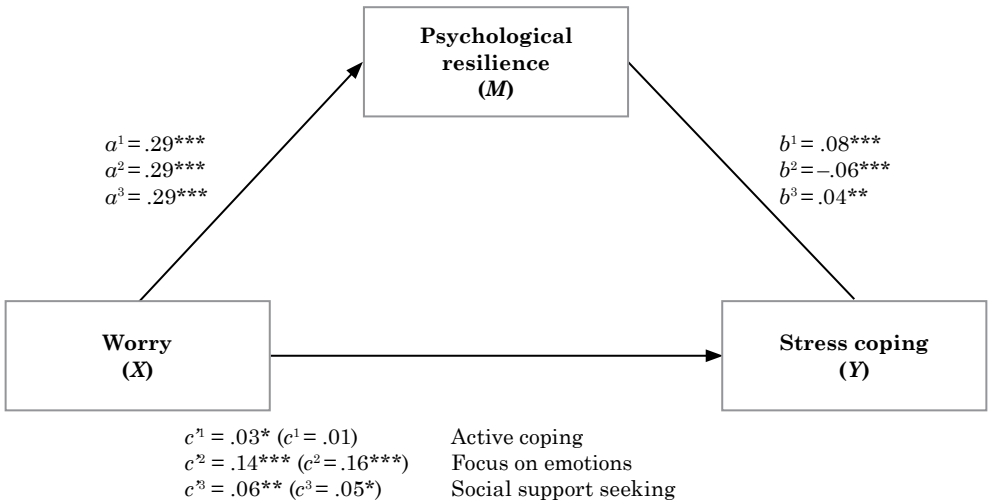

Figure 2. Model of Mediating Role of Psychological Resilience Between Worry and Stress Coping: Active Coping Strategy (1), Focus on Emotions (2), Social Support Seeking (3).

Note. *** $p < .001$, ** $p < .01$, * $p < .05$ (N= 404).
Source: own study.

In this case, there is a partial mediation effect($c' < c$), cumulative mediation; the total effect is statistically significant (c = .16***). When the mediator is included, the direct effect is still statistically significant, but the strength of the relationship between the predictor and the dependent variable is slightly weaker (c' = .14***). The percentage of explained variance is higher in the model without a mediator (R^2 = .20) but it decreases when a mediator is included (R^2 = .17). Mediation is statistically significant, as confirmed by the bootstrapping method, where the 95% confidence interval does not include zero (*IE* = .02; CI: .0059 – .0300).

For the situational emotion-focused strategy, the mediation effect was found to be statistically insignificant (*IE* = .006, CI: –.0024 – .0161). The percentage of the explained variance in both models was the same(R^2 = .17).

Another important aspect of the relationship relates to the dispositional strategy of seeking social support (Figure 2 – paths: $a^3 b^3 c'^3 c^3$).

The significance of the indirect effect of psychological resilience on the relationship between worry and dispositional strategy of social support-seeking was confirmed (*IE* = –.01, CI: –.0242 – –.0022); interestingly, the mediating effect here has the nature of cooperative suppression ($c' > c$), in which the initial correlation between the predictor and the dependent variable increases when controlling for the third variable (Cichocka & Bilewicz, 2010); similarly, the explained variance is higher when a mediator is incorporated (R^2 = .04 > R^2 = .02).

Identical results were obtained for the situational aspect of this strategy (*IE* = –.01; CI: –.0243 – –.0021), where c' = .06** > c = .05* and R^2 = .18 > R^2 = .17).

Table 2 (p. 121) summarizes the mediation analysis.

Table 2

Summary of Mediating Role of Psychological Resilience Between Worry and Stress Coping Strategies (N = 404)

Mediation type	Total effect	Direct effect	Indirect effect	CI		Conclusion
				Lower	Upper	
Worry → Resilience → Active coping (dispositional)	.01	.03*	–.02	–.0364	–.0107	classic suppression
Worry → Resilience → Active coping (situational)	.01	.04*	–.03	–.0390	–.0129	classic suppression
Worry → Resilience → Emotion focus (dispositional)	.16***	.14***	.02	.0059	.0300	partial mediation
Worry → Resilience → Emotion focus (situational)	.14***	.14***	.01	–.0024	.0161	insignificant mediation
Worry → Resilience → Social support seeking (dispositional)	.05*	.06**	–.01	–.0242	–.0022	cooperative suppression
Worry → Resilience → Social support seeking (situational)	.05*	.06**	–.01	–.0243	–.0021	cooperative suppression

Note. *** $p < .001$, ** $p < .01$, * $p < .05$ (N = 404)

Source: own study.

Discussion

The purpose of the present research was to evaluate the relationship between worry and stress coping in young people and to see if psychological resilience plays the role of a mediator between these variables.

In reply to the first research question a positive correlation was established between worry and two stress-coping strategies: emotional focus and seeking social support, relative to both situation-focused coping and the more stable, dispositional way of coping with stress. Since worrying is conducive to the emergence of negative emotions (Kelly & Miller, 1999), choosing emotion-focused coping strategies to defuse the negative affect seems only logical. One of the goals of seeking social support, in turn, is to communicate one's worries and concerns (which are many in the worry process) to a close person (Borkovec et al., 1998). Similar results were obtained in anxiety studies: individuals with a higher level of anxiety fared better thanks to their concentration on emotions (Dryhinicz

& Rzepa, 2018; Ramos-Lira et al., 2020; Talik & Król, 2014) or seeking support from dear ones (de Matos et al., 2016; Talik & Król, 2014). It is not surprising that both worried and anxious individuals choose similar emotion-oriented coping strategies, since worry is one of the basic components of anxiety, yet not the same as anxiety, as discussed in the introduction.

A simple correlation analysis did not demonstrate a significant link between worry and active stress coping. It was only when psychological resilience was included as a mediator in the mediation analysis, worry started to significantly predict the choice of active coping strategies. This means, however, that worriers resort to active stress coping, but this relationship is mediated by psychological resilience. In an attempt to explain this result, we could make use of conceptions treating worry as a way to solve a problem cognitively, by mentally processing it to be able to prepare for a possible confrontation with difficulties (see Borkovec et al., 1998; Davey, 1994). One might think that since a person has cognitively processed a problem, there is no need to engage in the actual and active solving of the problem. The results of our research suggest that the person is mobilized to act by her mental resilience. Of course, we cannot say what degree of psychological resilience in worriers favors choosing active coping. To answer this, a moderation analysis would have to be conducted.

Different results (with partial mediation in place) were obtained for the dispositional emotion-focused strategy: psychological resilience does reduce the existing positive relationship between worry and the emotion-focused strategy. This is an important finding because, as the literature shows, the strategy of focusing on emotions can be maladaptive – it can close the person to more active ways of solving problems by focusing her on her own emotional state (cf. Heszen-Niejodek, 2004). The second important thing is that this regularity applies only to the dispositional emotion-focused strategy of coping (the mediating effect has no significance for the situational character of this strategy), that is, the more enduring attitude of coping with difficulties. Psychological resilience – also treated as a more enduring disposition (Ogińska-Bulik & Juczyński, 2011) – can further weaken the more permanent tendency of worriers to cope by focusing on emotions.

The third strategy, social support seeking, generated different results. The inclusion of psychological resilience intensifies the existing link between worry and social support seeking. In other words, a person who is worrying seeks social support in a difficult situation (cf. de Matos et al., 2016; Talik & Król, 2014) and a factor further reinforcing this attitude is psychological resilience, which itself is conducive to the choice of this coping strategy (cf. Bulik & Zadworna-Cieślak, 2014; Konaszewski & Kwadrans, 2017; Wyszogrodzka & Woźniak-Prus, 2020).

In summary, our results suggest that the relationship between worry and stress coping is complex and mediated by other variables – in this case by mental resilience. The nature of this mediation varies and depends on the kind of coping strategy used: it either enhances an apparently non-existent relationship (worrying → active coping), or reinforces an actually existing dependence (worrying → social support seeking), or – as a mediator – partially explains the existing relationship (worrying → emotion focus). Irrespective of the nature of this mediation,

the results obtained indicate that psychological resilience is an important variable for understanding the complex phenomenon of worry in light of stress coping. This personal resource (Folkman et al., 2000; Heszen-Niejodek, 2004; Talik & Szewczyk, 2010) is important for remedial activity. The unique nature of the coping phenomenon in the worriers' group will not be adequately explained if psychological resilience is ignored, and this is true for each of the isolated coping strategies.

Finally, it is worth noting that in all models psychological resilience was negatively correlated with worry, suggesting that a low level of worry is associated with an increase in resilience. When we recall in this context Davey's (1994) concept of worry continuum, with a healthy, normal worry on one end and pathological (intrusive, excessive, uncontrollable) worry on the other, it can be supposed that for "healthy worriers" resilience is an important personal resource that promotes the adoption of more adaptive stress coping strategies.

Limitations

The major limitation of this study is its correlative and cross-sectional nature, which makes it impossible to make inferences about the causal relationships between variables. The scope of result generalization is limited, as the research was conducted in a group of young people. It should be noted that the tested group is unique because it comprises people whose developmental processes are not complete and their personality structure, in particular, is not fully developed (Bardziejewska, 2004; Brzezińska, 2002); it is therefore very hard to demonstrate a stable correlation between the variables. Perhaps, at later developmental stages, the mediation model would be different than the one conceived in this study.

Indications for Further Research

Further research would benefit from a moderation analysis, which could determine how different values of psychological resilience determine the direction or strength of the relationship between worry and the choice of a particular stress coping strategy. This begs a range of interesting research questions, for example, whether resilient worriers cope with stress differently than those with a low level of resilience. What level of psychological resilience promotes the use of active remedial strategies by worriers?

It would also be instructive to explore the model of the worry–stress coping relationship in other age groups as well, in relation to both the mediating and moderating role of psychological resilience – considering the unfinished developmental processes in the study group mentioned above but also the changes in the intensity of psychological resilience itself that have been observed in different age groups (cf. Ogińska-Bulik & Juczyński, 2011).

Equally interesting, as it seems, would be to explore other subjective variables within the category of personal resources, significant for remedial activities, such as self-efficacy, self-coherence, or a sense of purpose in life.

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