

THE RELATIONSHIP BETWEEN EMPLOYEES' MENTAL RESILIENCE AND JOB INSECURITY IN THE HARD COAL MINING INDUSTRY IN POLAND

Adam GUMIŃSKI^{1*}, Adam BOSOWSKI², Marzena PISARSKA³

¹ Silesian University of Technology; adam.guminski@polsl.pl, ORCID: 0000-0001-8250-7101

² University of Economics and Human Sciences; a.bosowski@vizja.pl, ORCID: 0000-0001-6631-0608

³ Silesian University of Technology; pisarskamarzena@wp.pl

*Correspondence author

Purpose: The article presents the research results concerning the relationship between subjectively experienced job insecurity, anxiety as a trait, and mental resilience of hard coal industry workers in Poland. It is mainly focused on the role of mental resilience as a mediating individual resource and its importance during the critical situation in the sector of early 2026.

Design/methodology/approach: The objectives of the research were achieved by combining methods. Especially, the authors applied a cross-sectional, exploratory study conducted using an anonymous online survey (Google Forms). Research tools included the Anxiety Scale – Trait (SL-C), the SPP-25 Mental Resilience Scale, and specific items from the Copenhagen Psychosocial Questionnaire (COPSOQ) to measure job insecurity.

Findings: The research enables the verification of a few hypotheses regarding the negative correlation between anxiety as a trait and mental resilience. It was found that resilience is a mediating mechanism that buffers the impact of subjectively perceived job insecurity on the emotional functioning and activity of employees.

Practical implications: The results obtained have important practical implications for both analysed coal companies and for specialists dealing with psychological support for employees exposed to chronic job insecurity. The research results suggest that mental resilience is a key factor in buffering organizational stressors. This provides a basis for the development of psychological support and social protection programs (e.g., miners' leave) to protect the mental health of employees in sectors affected by inevitable restructuring.

Originality/value: The value of the research is up to date, it raises important issues in crisis, specifically in hard coal mining in Poland. The authors provide a contextual analysis on the importance of the psychological effects of the mining crisis in Poland in early 2026, with particular emphasis on comparing the situation of employees of Jastrzębska Spółka Węglowa (JSW) and Polska Grupa Górnicza (PGG).

Keywords: job insecurity, mental resilience, trait anxiety, hard coal mining.

Category of the paper: research paper.

1. Introduction

At the beginning of 2026, the situation of the mining industry in Poland is described as critical. The sector is suffering significant financial losses and is undergoing a process of successive liquidation of mining units. Polish strategic companies such as Polska Grupa Górnicza (PGG) and Jastrzębska Spółka Węglowa (JSW) require deep restructuring to avoid bankruptcy, which forces the companies to make changes in their operational and financial activities.

The mining industry is facing key challenges:

- deepening unprofitability: high costs of mining activities make it difficult for the mining sector to compete with imported raw materials and constantly developing renewable energy sources,
- dependence on state aid: the sector relies heavily on public support mechanisms,
- personnel and social problems: the closure of the coal industry is accompanied by the need to provide social protection, such as severance pay or mining leave,

Jastrzębska Spółka Węglowa is struggling with the biggest financial crisis in years. As a key producer of coking coal in the EU, JSW is in a deep restructuring phase. The company's financial results after three quarters of 2025 amount to nearly PLN 2.9 billion in net loss, the main reason for which is the drastic drop in coking coal prices with constantly rising mining costs. In connection with the company's difficult situation, the Management Board of JSW SA signed an annex to the Collective Agreement of 31 March 2021, which gave employees a guarantee of employment until 2031. As a result of the signing of the annex, certain groups of employees were excluded from the employment guarantee, which puts employees in a precarious professional situation (jsw.pl, 2025). The situation of Polska Grupa Górnicza at the beginning of 2026 also remains tense, and the company operates based on financial support from the state budget.

Despite extensive literature on the negative impact of job insecurity on mental health, there is a significant lack of empirical research focusing on the Polish coal industry during the 2025-2026 financial crisis. Specifically, current research fails to account for how individual psychological resources, such as mental resilience, mediate the relationship between macro-economic precariousness and trait anxiety in workers. Furthermore, there is a lack of comparative analysis between differently funded mining entities (JSW vs. PGG), leaving a void in our understanding of how corporate stability models influence worker psychology.

The aim of this study was to examine the relationship between subjectively experienced job insecurity, anxiety as a trait and mental resilience among coal industry workers in Poland. Attention was paid to the role of mental resilience as an individual resource related to the emotional functioning of employees in conditions of occupational risk.

An additional objective of the study was to compare the employees of two main mining groups – Jastrzębska Spółka Węglowa (JSW) and Polska Grupa Górnicza (PGG) – in terms of the level of job insecurity, anxiety as a trait and mental resilience.

Based on the aim of the study, the following research questions were formulated:

1. What is the level of subjectively experienced job insecurity, anxiety as a trait and mental resilience among coal industry workers?
2. Are there significant relationships between job insecurity and anxiety as a feature in coal industry workers?
3. Are mental resilience and its individual dimensions significantly related to anxiety as a trait?
4. Does mental resilience mediate the relationship between job insecurity and anxiety as a trait?
5. Do JSW and PGG employees differ in terms of the level of job insecurity, anxiety as a trait and mental resilience?

2. Description of issues concerning the research problems

2.1. Anxiety as a trait

Trait anxiety is one of the key concepts in personality psychology and emotional psychology, referring to the relatively constant disposition of an individual to react with tension, fear and increased emotional arousal in a wide range of life situations. Unlike anxiety as a condition, which is transient and situationally conditioned, anxiety as a trait reflects a persistent pattern of emotional functioning, associated with individual differences in susceptibility to experiencing danger (Spielberger, 1983).

The classic distinction between anxiety and anxiety as a trait was introduced within Spielberger's concept that anxiety-state refers to the current, subjective experience of tension and anxiety, while anxiety-trait refers to the tendency to experience such states frequently and intensely in response to a wide range of stimuli perceived as threatening (Spielberger, Gorsuch, Lushene, 1970; Spielberger, 1983). People with a high level of anxiety show increased alertness to potential threats, a tendency to interpret ambiguous situations as threatening, and a lowered threshold for reacting with anxiety.

From a cognitive perspective, anxiety as a trait is associated with persistent cognitive patterns and information processing style, conducive to selectively directing attention to negative or potentially dangerous stimuli. Research indicates that people with high levels of anxiety-traits are more likely to experience difficulties in regulating emotions, show elevated levels of tension even in objectively neutral situations, and tend to anticipate the negative consequences of future events (Eysenck, Derakshan, Santos, Calvo, 2007; Endler, Kocovski, 2001).

Anxiety as a trait is also considered to be a relatively stable component of the personality structure, exhibiting moderate to high temporal stability. Although the level of anxiety-trait may change under the influence of long-term life experiences or psychological interventions, it remains much less susceptible to short-term situational fluctuations than anxiety-state (Spielberger, 1983). The literature emphasizes that anxiety-trait has a predisposing function – it increases the likelihood of stronger anxiety reactions in stressful situations, but it is not a direct reaction to a specific stressor.

In the context of professional functioning, anxiety as a trait is sometimes associated with reduced mental well-being, a higher level of burnout and greater susceptibility to the negative consequences of work stress. At the same time, research indicates that the relationship between anxiety-trait and occupational stressors is often indirect and is modified by personal resources, such as mental resilience, resilience or a sense of control (Sverke et al., 2002; Cheng, Chan, 2008). This means that anxiety as a trait does not have to be a simple function of the current professional situation but rather reflects the way in which the individual interprets, and lives experiences related to uncertainty and threat.

For this reason, anxiety as a trait is often used in research on psychosocial determinants of mental health as an indicator of relatively permanent emotional functioning, allowing to distinguish situational reactions from deeper-rooted individual predispositions. This study adopts this understanding of anxiety as a trait, treating it as a stable emotional disposition, potentially modified by the individual's adaptive resources, rather than a direct effect of subjectively perceived job insecurity.

2.2. Mental resilience

Mental resilience is a construct widely described in health psychology, personality psychology, and work and organizational psychology, referring to an individual's ability to function effectively, adapt, and return to relative mental balance in the face of stress, adversity, and potentially traumatic experiences. In the literature on the subject, resilience is understood both as a relatively permanent personality disposition and as a dynamic adaptation process, shaped in the interaction of individual characteristics with the requirements of the environment (Masten, 2001; Fletcher, Sarkar, 2013).

One of the most influential approaches to mental resilience emphasizes its role as a protective resource that enables an individual not only to survive difficult experiences, but also to maintain a relatively stable level of emotional and behavioural functioning (Bonanno, 2004). In this sense, resilience does not mean the lack of emotional reactions to stress, but the ability to regulate them and adapt flexibly to changing conditions. People with a high level of resilience can regain mental balance more quickly, use available resources more effectively, and treat difficulties as developmental challenges rather than just threats.

In terms of personality, mental resilience is understood as a relatively stable set of traits and competences conducive to adaptive coping with stress. Such an approach has been adopted, *m.in.*, in the Polish concept of mental resilience operationalized by the SPP-25 Mental Resilience Scale, which includes dimensions related to perseverance in action, openness to experience, personal competence, tolerance of failures and an optimistic attitude to life (Ogińska-Bulik, Juczyński, 2008). The authors emphasize that resilience acts as a resource conducive to maintaining mental health in conditions of prolonged stress, increasing the individual's ability to mobilize and respond flexibly.

From the perspective of Hobfoll (2002) resource conservation theory, mental resilience can be treated as a key personal resource that enables the protection of other resources (e.g. a sense of control, emotional well-being) and reduces the negative effects of environmental stressors. In situations of chronic risk, such as job insecurity, people with high levels of resilience are more likely to adopt active coping strategies, reinterpret stressful situations, and maintain relatively stable emotional functioning.

Empirical studies consistently indicate that mental resilience is significantly associated with lower levels of anxiety and depressive symptoms, higher mental well-being, and better adaptation to occupational stress (Fletcher, Sarkar, 2013; Hartmann et al., 2020). Importance is given to the cognitive components of resilience, such as optimism, sense of purpose and the ability to cognitively reinterpret difficult experiences, which promote the regulation of emotions and reduce the tendency to react chronically with anxiety.

In the context of professional work, mental resilience is increasingly analyzed as a buffering factor for the negative consequences of organizational stressors, including job insecurity. The results of the study suggest that people with high resilience experience less severity of negative emotional responses even in objectively high-risk situations, indicating its important role in adaptive processes (Sverke et al., 2002; Hartmann et al., 2020). Resilience does not eliminate stress but reduces its destructive impact on emotional functioning and mental health.

For this reason, mental resilience is sometimes referred to as one of the key individual resources in research on the mental health of employees operating in conditions of long-term uncertainty and organizational change. This study adopts this understanding of mental resilience, treating it as a relatively permanent, multidimensional personal resource, potentially mediating in the relationship between subjectively experienced job insecurity and anxiety as a trait.

2.3. Job insecurity

Job insecurity is one of the key constructs in the psychology of work and organization, referring to the subjectively experienced threat to the continuity of employment and concerns related to the professional future. Unlike the objective risk of job loss, job insecurity is cognitive-emotional in nature and concerns an individual's perception of the professional situation, regardless of the actual employment status (Greenhalgh, Rosenblatt, 1984; De Witte, 2005).

The classic definition proposed by Greenhalgh and Rosenblatt (1984) describes job insecurity as a subjective feeling of powerlessness in the face of the threat of losing the desired aspects of work, in a situation where the individual perceives the possibility of negative changes, but at the same time assesses his or her ability to influence their course as limited. This approach emphasizes that the key element of job insecurity is not the threat itself, but the lack of control and predictability, which give this experience a particularly burdensome psychological character.

In the literature on the subject, a distinction between quantitative and qualitative job insecurity is commonly accepted. Quantitative uncertainty refers to the fear of losing one's job altogether, while qualitative uncertainty refers to the risk of losing important aspects of work, such as employment conditions, professional status, responsibilities or place of work (Hellgren, Sverke, Isaksson, 1999). Research indicates that both dimensions may have different psychological consequences, with qualitative uncertainty being particularly burdensome in the conditions of organizational restructuring and systemic changes.

From a cognitive perspective, job insecurity is treated as a chronic stressor that activates anticipatory processes, which consist in anticipating potentially negative events in the future. Unlike one-off stressors, job insecurity is characterized by longevity and the lack of a clearly defined end point, which promotes the persistence of emotional tension and a sense of threat (De Witte, 2005; Sverke, Hellgren, Näswall, 2002). Such a nature of the stressor makes its impact on mental functioning stronger and more debilitating than the effects of the actual loss of a job.

Empirical studies consistently indicate that job insecurity is associated with reduced mental well-being, higher levels of distress, anxiety and depressive symptoms, as well as negative attitudes towards work, such as a decrease in job satisfaction or organizational engagement (Sverke et al., 2002; Cheng, Chan, 2008). At the same time, the results of many studies suggest that these relationships are not simple and linear in nature, but are modified by individual and contextual factors, including personal resources, social support and a sense of control.

In more recent theoretical approaches, there is an increasing emphasis on the role of psychological resources in moderating and mediating the effects of job precariousness. According to Hobfoll's (2002) theory of resource conservation, job insecurity can lead to the loss or threat of loss of key resources, such as a sense of security, stability or predictability, which in turn promotes the intensification of stress reactions. At the same time, having adaptive resources such as mental resilience can reduce the negative consequences of uncertainty, allowing you to deal with the threat more flexibly and constructively.

In the context of professional work, job insecurity is particularly relevant in sectors undergoing restructuring, systemic transformations or prolonged economic pressures. In such conditions, job insecurity becomes a permanent element of the work environment, affecting not only the current functioning of employees, but also their long-term mental health and adaptation strategies (De Witte, 2005; Sverke et al., 2002). For this reason, in this study, job insecurity has been included as a subjectively experienced, cognitive dimension of occupational risk, potentially affecting the emotional functioning of employees through individual resources.

3. The research procedure

The following research hypotheses were formulated:

- H1. Subjectively experienced job insecurity is positively related to its situational indicators, such as the possibility of losing a job, the difficulty of finding a new job and the risk of unwanted relocation.
- H2. Anxiety as a trait is significantly and negatively related to mental resilience and its individual dimensions.
- H3. Mental resilience is significantly related to the level of emotional functioning of employees, with higher levels of resilience associated with lower levels of anxiety as a trait.
- H4. Mental resilience mediates the relationship between job insecurity and anxiety as a trait.
- H5. JSW and PGG employees differ in terms of selected aspects of mental resilience and perception of occupational threats.

3.1. Applied tools

Anxiety Scale – Trait (SL-C)

Anxiety as a relatively constant personality disposition was measured using the Anxiety – Trait Scale (SL-C), which is part of Spielberger's Inventory of State and Traits of Anxiety (Spielberger, 1983). This scale is used to assess an individual's persistent propensity to react with anxiety in various life and professional situations, regardless of current circumstances. The study used a Polish scale adaptation, developed by Piksa, Kosiorowska and Golonka, designed to measure anxiety as a trait in the adult populations.

Mental Resilience Scale (SPP-25)

Mental resilience was assessed using the SPP-25 Mental Resilience Scale, developed by Ogińska-Bulik and Juczyński (Ogińska-Bulik, Juczyński, 2008). This tool is used to measure relatively sustainable personal resources that are conducive to effective coping with adversity and stress.

Job insecurity

Subjective job insecurity was measured using three items from the Copenhagen Psychosocial Questionnaire (COPSOQ), which relate to key aspects of perceived occupational risk. These items concerned: (a) the possibility of losing a job (unemployment), (b) the difficulty of finding a new job in the event of losing a current job, and (c) the possibility of being directed to another job or a place where the respondent would not like to work. Respondents assessed the degree of perceived threat on an ordinal scale.

3.2. Study participants and procedure

The survey was a one-time cross-sectional study and was conducted in the form of an anonymous online survey. The participants were recruited by targeted selection through publicly available online forums and discussion groups associating employees of the coal industry in Poland, in particular employees of coal companies such as Jastrzębska Spółka Węglowa (JSW) and Polska Grupa Górnicza (PGG). Participation in the study was completely voluntary and did not involve any remuneration or gratification. The study did not require the provision of data enabling the identification of participants, and the information collected was only declarative.

The research questionnaire was carried out using the Google Form platform and included: metric questions, items measuring subjective job insecurity, Anxiety – Trait Scale (SL-C) and Mental Resilience Scale (SPP-25). The average time to complete the survey was about ... minutes. The answers were automatically saved in a secure database to which only the author of the study had access.

In the study group (number of respondents = 154), the mean age was 36 years. The median is 37, and the dominant age is 40. The most common education indicated by the respondents was secondary education (81 people) and higher education (49 people), while 25 people indicated their education at the vocational level. A much larger number of respondents (77.7%) indicated Jastrzębska Spółka Węglowa SA (JSW) as their place of employment, 17.2% indicated Polska Grupa Górnicza (PGG). 5 people indicated another mining group, while less than 2% did not want to answer this question. The average length of service of the surveyed people is over 14 years. The dominant score is 20 – this is the most common length of service of the respondents (16 people declared this age). The shortest period of work is 1 year; the longest one is 36 years.

4. Discussion of the research results

In the first stage of the analysis, descriptive statistics and correlation analyses were carried out to determine the relationships between subjective job insecurity, anxiety as a trait, and mental resilience and its dimensions. Subsequently, comparative analyses were carried out between groups of employees of various mining companies and between persons associated and non-affiliated in trade unions. In the next step, regression analyses and mediation analysis were carried out to check whether mental resilience plays the role of a mediator in the relationship between job insecurity and anxiety as a trait. Statistical analyses were performed using IBM SPSS Statistics (version 29.0.2.0). In all analyses, the statistical significance level was assumed to be $\alpha = .05$.

In the first step, the distributions of quantitative variables were tested. For this purpose, descriptive statistics were calculated along with the Shapiro-Wilk test, which examines the normality of the distribution. The results of this analysis are presented in Table 1.

Table 1.*Basic descriptive statistics with the Shapiro-Wolf test*

	M	Me	SD	SKK	K	Min	Max	W	p
Anxiety as a trait	23.34	23	8.54	.096	-.167	3.00	45.00	.994	.786
Overall Elasticity Score	92.22	96	18.12	-1.315	3.767	.00	122.00	.923	<.001
Perseverance and determination in action	19.26	20	4.01	-1.407	3.649	.00	25.00	.902	<.001
Openness to new experiences and a sense of humor	19.36	20	3.79	-1.485	3.966	.00	25.00	.894	<.001
Personal coping competence and tolerance of negative emotions	18.47	19	4.39	-1.372	2.826	.00	25.00	.937	<.001
Tolerance for failure and treating life as a challenge	18.35	19	3.94	-1.066	2.442	.00	25.00	.937	<.001
Optimistic attitude to life and the ability to mobilize in difficult situations	16.76	17	4.62	-.730	.520	.00	25.00	.960	<.001

Annotation. M - average; Me - median; SD - standard deviation; Sk. - skewness; K. - kurtosis; Min. - minimum value; Max. - maximum value; W - the result of the Shapiro-Wilk test; p - the p-value for the Shapiro-Wolf test.

The group of JSW employees (N = 122) was dominated by responses indicating a low sense of risk of losing their job. The most frequently chosen categories were "almost never" (36.1%) and "rarely" (30.3%). In total, more than two-thirds of the surveyed JSW employees (67.2%) declared that the possibility of losing their job was rare or almost never. At the same time, 18.0% of respondents in this group indicated the answer "always" and 5.7% – "often", suggesting that there is a significant minority of workers experiencing a high level of job insecurity.

In the PGG group (N = 27), the responses indicating a relatively low perception of unemployment risk also prevailed, but the distribution of responses was more diverse than in JSW. The most frequently indicated category was "almost never" (51.9%), while 11.1% of respondents indicated "rarely". At the same time, 14.8% of respondents declared that the possibility of losing their job occurs "always", and 7.4% – "often". This means that a total of 22.2% of PGG employees experience a high sense of risk of losing their jobs.

In the group of JSW employees (N = 122), the distribution of responses indicated a significant variation in the level of perceived threat, while at the same time the assessments were polarized. The most frequently chosen categories were "always" (27.9%) and "rarely" (28.7%). More than a quarter of JSW respondents declared that finding a new job would always be a problem for them if they lost their current one, while 21.3% indicated the answer "almost never". A total of 36.9% of JSW employees assessed that difficulties in finding a new job occurred frequently or always, while 50.8% of respondents considered that such a problem occurs rarely. almost never or never.

In the PGG group (N = 27), a clear discrepancy in assessments was also observed, but with a slightly different response structure. The most frequently indicated category was "always" (29.6%), which means that almost one third of the surveyed PGG employees perceived finding a new job as a permanent and significant problem. At the same time, 25.9% of respondents indicated the answer "almost never", and 18.5% – "rarely". A total of 37.0% of PGG employees declared a high level of difficulty (often or always), while 44.4% – a low level of difficulty (almost never or rarely).

In the group of JSW employees (N = 122), the responses indicated a significant variation in the level of perceived threat, while at the same time there was a clear group of respondents who felt high uncertainty in this regard. The most frequently chosen category was "always" (27.9%), which means that more than a quarter of the surveyed JSW employees declared that they were constantly referred to an unwanted place or type of work. The next frequently indicated answers were "almost never" (29.5%) and "rarely" (19.7%). A total of 50.0% of JSW respondents assessed this risk as low (never, almost never or rarely), while 49.8% indicated a moderate or high level of risk (sometimes, often or always), which indicates an almost equal distribution of grades in this group.

In the PGG group (N = 27), the distribution of responses was more even, but with a clear shift towards a higher risk perception. The most frequently indicated category was the answer "always" (25.9%), and a similar percentage of respondents indicated the answers "rarely", "sometimes" and "often" (22.2% each). Only 7.4% of PGG respondents declared the answer "almost never". A total of 70.3% of PGG employees assessed the possibility of being referred to unwanted work as occurring sometimes, often or always, suggesting a high level of subjective uncertainty in this area.

Taken together, the results suggest that at JSW the uncertainty is more diverse and selective, while at PGG it takes the form of a more global and generalized threat to the professional future.

Table 2.*Significant correlations – JSW Group*

Variable 1	Variable 2	r Pearson
a) Loss of job	Job insecurity	.659**
b) Difficulty in finding a job	Job insecurity	.677**
c) Unfavourable relocation	Job insecurity	.716**
Resilience – total	Anxiety as a trait	-.697**
Perseverance	Anxiety as a trait	-.475**
Openness	Anxiety as a trait	-.620**
Personal competences	Anxiety as a trait	-.658**
Tolerance for failure	Anxiety as a trait	-.639**
Optimism	Anxiety as a trait	-.684**

* $p < .05$, ** $p < .01$ (double-sided).**Table 3.***Significant correlations – PGG Group*

Variable 1	Variable 2	r Pearson
a) Loss of job	Job insecurity	.663**
b) Difficulty in finding a job	Job insecurity	.781**
c) Unfavourable relocation	Job insecurity	.699**
Resilience – total	Anxiety as a trait	-.497**
Personal competences	Anxiety as a trait	-.425*
Tolerance for failure	Anxiety as a trait	-.637**
Optimism	Anxiety as a trait	-.488**

* $p < .05$, ** $p < .01$ (double-sided).

In the group of JSW employees (table 2), strong and consistent relationships were found between the three indicators of situational job insecurity (the possibility of losing a job, the difficulty of finding a new job and the possibility of unwanted relocation) and the global index of job insecurity ($r = .659-.716$, $p < .001$), which confirms their validity as components of this construct. At the same time, job insecurity was not significantly associated with anxiety as a trait, while anxiety showed strong, negative correlations with the overall level of mental resilience ($r = -.697$, $p < .001$) and all its dimensions ($r = -.475$ to $-.684$, $p < .001$). This means that at JSW, anxiety as a relatively constant personality disposition is closely related to the individual's adaptation resources, and not directly to the assessment of the current professional situation. At the same time, mental resilience and its components (especially personal competence, tolerance to failure, and optimism) form a strongly correlated system of protective resources ($r = .795-.932$, $p < .001$).

In the group of PGG employees (table 3.), very strong links between the three indicators of occupational risk and job insecurity were also confirmed ($r = .663-.781$, $p < .001$), and these relationships were in places stronger than in JSW. Unlike JSW, at PGG, anxiety as a trait showed significant negative correlations with mental resilience ($r = -.497$, $p = .008$) and its key components, in particular personal competence ($r = -.425$, $p = .027$), failure tolerance ($r = -.637$, $p < .001$) and optimistic attitude ($r = -.488$, $p = .010$). As in JSW, job insecurity itself was not directly related to anxiety, but the strong integration of resilience dimensions ($r = .585-.943$, $p \leq .001$) indicates that it plays a key buffering role against negative emotional consequences.

The results obtained allow for the formulation of several important theoretical and practical conclusions, which are in line with the current of research on the psychosocial consequences of job insecurity.

The results confirmed the H1 hypothesis, pointing to strong and significant links between three situational indicators (the possibility of losing a job, the difficulty of finding a new job and the risk of unwanted relocation) and the global indicator of subjective job insecurity. The correlations obtained were high in both the JSW Group and PGG, which confirms the accuracy of the adopted operationalization of job insecurity as a cognitive construct based on the subjective perception of the threat to employment continuity (De Witte, 2005).

These results are consistent with previous studies indicating that job insecurity is not a homogeneous experience, but consists of many interrelated, though not identical, aspects, such as fear of unemployment, job degradation or forced change in working conditions (Sverke, Hellgren, Näswall, 2002; Greenhalgh, Rosenblatt, 1984). In the context of the coal industry, which has been operating under conditions of restructuring and transformational pressure for years, such a multidimensional perception of threats seems particularly justified.

One of the key results of the survey was the lack of a significant direct link between the global index of job insecurity and anxiety as a trait, both in the JSW Group and PGG. This result may seem surprising, but it remains consistent with the distinction between situational reactions and relatively permanent personality dispositions.

Anxiety as a trait, measured using the Anxiety Scale – Trait (Spielberger, 1983), refers to an individual's stable tendency to experience tension and fears in various life situations, rather than reacting to specific, current stressors. The literature emphasizes that job insecurity is more strongly associated with anxiety-state, distress or depressive symptoms, while its relationships with personality traits are weaker and often mediated by other variables, such as psychological resources or social support (Cheng, Chan, 2008; De Cuyper, De Witte, 2007).

The strongest and most consistent pattern of relationships revealed in the study were significant, negative relationships between anxiety as a trait and mental resilience – both in general terms and in relation to its individual dimensions. These results unequivocally confirm the H2 hypothesis and are consistent with numerous studies indicating that mental resilience acts as an adaptive resource, conducive to effective coping with chronic stress and regulating emotions (Ogińska-Bulik, Juczyński, 2008; Fletcher, Sarkar, 2013).

Particularly strong associations with anxiety-trait concerned such components of resilience as personal coping competence, tolerance for failure, and an optimistic attitude towards life. According to the concepts of Lazarus and Folkman (1984), these resources increase the sense of agency and control, which reduces the tendency to react chronically with anxiety. The results of the study suggest that it is the level of pressure, rather than the perception of occupational hazards itself, that differentiates the level of anxiety as a relatively constant disposition to a greater extent in coal workers.

Although the study did not find a direct relationship between job insecurity and anxiety-trait, the correlations obtained between mental resilience and both variables support the theoretical validity of the mediation model (H4 hypothesis). According to this approach, job insecurity can affect emotional functioning indirectly – by weakening the individual's adaptive resources, which in turn promotes the intensification of anxiety.

Similar mechanisms have been described in studies that have shown that personal resources (e.g., mental resilience, sense of coherence, or self-efficacy) mediate the relationship between occupational stressors and mental well-being (Hartmann et al., 2020; Hobfoll, 2002). The results suggest that mental resilience may play an analogous role in the context of job insecurity.

Comparative analyses have shown a significant difference between JSW and PGG employees only in terms of tolerance for failure and treating life as a challenge. A lower level of this dimension in the PGG Group may reflect long-term functioning in conditions of more globally perceived uncertainty, which in the long term may weaken the ability to cognitively reinterpret difficulties as challenges rather than threats.

On the other hand, membership in trade unions only differentiated the perception of the risk of unwanted relocation, with no differences in anxiety and resilience. This result can be interpreted in the light of research showing that trade unions primarily affect the sense of security in areas directly related to the protection of workers' interests, while they have a lesser impact on individual psychological resources (Sverke et al., 2002).

5. Limitations of the study and further research

Despite the significant cognitive value of the results obtained, the study has several limitations that should be considered when interpreting them. First, the study was of a cross-sectional nature, which makes it impossible to conclude about cause-and-effect relationships between the analysed variables. It is not possible to clearly determine whether a lower level of mental resilience leads to a higher level of anxiety as a trait, or whether chronically elevated anxiety hinders the development and maintenance of resilience resources. Therefore, it seems reasonable to conduct longitudinal studies that would allow us to capture the dynamics of these relationships over time.

Another limitation is the way job insecurity is measured. The use of three indicator items, although consistent with the adopted objective of the study and the literature on the subject, limits the possibilities of full psychometric analysis of this construct and testing of more complex statistical models. Future research could use full versions of tools to measure job precariousness, which would allow for a more accurate distinction between its dimensions (e.g. quantitative and qualitative precariousness).

The structure of the research sample is also a limitation. Most of respondents were men, reflecting the specificities of the mining sector, but at the same time limiting the possibility of generalising the results to populations with a different gender structure. In addition, the size of the PGG Group was significantly smaller than that of the JSW Group, which may have affected the statistical strength of the comparative analyses and the stability of the estimation of the effects. In future studies, it is useful to aim for more numerically balanced groups or to use procedures to control the impact of sample inequality.

An additional limitation is the use of only self-report methods, which is associated with the risk of errors resulting from the bias of the answers, the current emotional state of the respondents or the effects of social approval. In future studies, it would be advisable to complement the questionnaire measurements with qualitative data (e.g. interviews) or organisational indicators, such as information on actual changes in employment or relocation.

Despite the limitations, the study makes a significant contribution to understanding the psychological mechanisms of coal industry workers in conditions of job insecurity. The results underscore the importance of mental resilience as a key protective resource and provide a solid basis for further research on the interaction between occupational stressors and the relatively enduring characteristics and resources of an individual.

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