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EDITORIAL

„In Therapy" with Algorithms

Denisa Berceanu

University of Bucharest

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In an evolving world where artificial intelligence increasingly reshapes our daily lives, and people are starting to talk more often to algorithms, one question inevitably emerges: is it safe and ethical to use AI for mental health care? Let's talk about that.

Artificial intelligence is already entering the therapeutic space through AI-driven chatbots designed to support people experiencing depression, anxiety, and stress. Some of the most studied tools, such as Woebot and Wysa, show encouraging results. For example, a randomized controlled trial (Suharwardy et al., 2023) evaluated postpartum women using Woebot for six weeks. The Woebot group showed significantly reduction in depression scores from baseline on one assessment tool that is commonly used in clinical practice. Over 70% achieved clinically significant improvement, and no adverse events were reported. Engagement was high, with participants interacting with the chatbot about five times per week. Similarly, Wysa demonstrated strong engagement among users with no or moderate anxiety symptoms (Chang, et al., 2024).

Moreover, according to some studies, chatbots can build therapeutic bonds comparable to that found in traditional face-to-face CBT, even within just a few days of use, suggesting that AI chatbots can successfully establish meaningful therapeutic engagement with users (Darcy et al., 2021). Mobile mental health apps are particularly promising for young people, who appreciate flexibility, cultural sensitivity, and personalized interfaces (Chen et al., 2025).

Diagnostic and monitoring applications of AI have shown promise as well. According to Cruz-González et al. (2025) AI tools can detect and predict mental health conditions with high accuracy using algorithms like support vector machines and random forests. Also, tools such as machine learning and natural language processing can analyze patient behavior and text for early intervention opportunities (Le Glaz et al., 2021). Yet, these tools often rely on narrow datasets, such as social media posts, which may not reflect diverse populations or contexts.

However, significant limitations persist. Chatbots and AI companions lack the empathy and contextual judgment necessary to form a true therapeutic alliance, something central to effective psychotherapy. Moreover, only 16% of LLM studies underwent clinical efficacy testing, with most (77%) still in early validation (Hua et al., 2025). The World Health Organization has emphasized that AI must not replace human clinicians, whose capacity for moral reasoning and emotional connection remains irreplaceable (WHO, 2021).

These tools offer 24/7, nonjudgmental support, especially for those facing stigma or lacking access to human therapists. However, in traditional psychotherapy, sessions are deliberately spaced to encourage reflection, integration, and the development of coping autonomy. By contrast, the on-demand nature of AI companions might foster emotional dependence rather than resilience if not carefully guided. Thus, while high engagement reflects user trust and accessibility, it also highlights the need for balanced use that promotes self-efficacy rather than reliance.

Also, evidence on AI-based conversational agents shows mixed outcomes. While some studies report meaningful reductions in depression and distress, others find no significant impact on overall psychological well-being (Li et al., 2023). Importantly, few studies assess long-term safety. Abd-Alrazaq et al. (2020) found only weak evidence supporting chatbot

efficacy and limited safety evaluations. In addition, generative AI has failed in real-world settings to detect suicidal ideation, sometimes giving inappropriate or harmful advice (Hua et al., 2025).

Bias is another threat. AI systems trained on non-representative data may produce skewed outputs that reinforce health disparities (Saeidnia et al., 2024). And while machine learning shows promise in predicting suicide risk (Kirtley et al., 2022), its real-world impact is constrained by data quality, ethical considerations, and the lack of scalable interventions for those identified as high-risk. As a result, while chatbots hold promise for expanding access to mental health support, current research is largely exploratory and lacks the robust clinical trials and interactional depth needed to validate their effectiveness (Mayor, 2025).

To address these concerns, the WHO has outlined six guiding principles for AI in health, including the protection of human autonomy, transparency, equity, and sustainability (WHO, 2021). These principles are not optional, they are the ethical backbone of responsible AI deployment in mental health care.

So, is it okay to use AI in therapy? Yes, if we remember who it serves. AI can guide and even comfort, but it cannot feel. It cannot truly sit with silence, read between the words, or hold space for pain. Let AI be the map, but let the human therapist remain the compass. Only together can they chart a path toward compassionate, ethical, and accessible care.

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Are Mindful Employees Less Stressed at Work? The Impact of Mindfulness on Perceived Workplace Stress and the Moderating Role of Social Support

Alexia-Ana Alexandrescu

University of Bucharest

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University of Bucharest, Department of Psychology, 90 Panduri Av, Bucharest, RO.
Tel.: +40 (0) 31-425.34.45
E-mail address: alexia.alexandrescu16@gmail.com

ABSTRACT

The present study aimed to investigate whether the role trait mindfulness (the general tendency to be present) decreases the stress level, where social support moderates this relationship. Stress has harmful effects on mental and physical health as well as productivity at work, being one of the main triggers for these problems. At the same time, mindfulness can mitigate these effects. However, few studies have tested the moderating role of social support and the empirical role of the awareness trait in this process. A sample of 182 employees participated in this cross-sectional study by completing a research questionnaire consisting of the Freiburg Mindfulness Inventory, the Social Provisions Scale, and the Work Stress Questionnaire. It was observed that mindfulness and social support are significant negative predictors of stress, indicating that higher levels of the two variables predict lower stress levels. At the same time, social support was found to moderate the relationship between mindfulness and stress. These results emphasize the importance of integrating mindfulness programs alongside strategies to improve social support in the workplace. Future research should use a longitudinal design to observe the relationship between these long-term variables and the use of a possible mediating variable..

Keywords: mindfulness, well-being, social support, stress, moderation

1. INTRODUCTION

Significance of the Topic

Perceived stress is a critical factor affecting both professional and personal well-being, influencing mental health, workplace productivity, and economic outcomes (Siu et al., 2020). Short-term stress can aid task performance, but chronic stress poses physiological and psychological risks, including anxiety, depression, muscle tension, headaches and insomnia (The American Institute of Stress, 2024).

The role of mindfulness

Mindfulness, an intrinsically ethical stance, emphasizes present-moment awareness, attention to sensory stimuli, and non-judgmental observation (Kabat-Zinn, 2021). Research shows that mindfulness practices, including deep-breathing exercises, can reduce stress, such as workplace stress (Siu et al., 2020). It can be conceptualized along two dimensions: trait and practiced mindfulness (Goldberg et al., 2021). Trait mindfulness reflects a stable, natural tendency to maintain present-focused, non-reactive awareness, linked to lower negative affect, better mental health, greater life satisfaction, and enhanced emotional regulation (Allen & Kiburz, 2011; Mesmer-Magnus et al., 2017; Raza et al., 2018). The Five Facet Mindfulness Questionnaire assesses observing, describing, acting with awareness, non-judging, and non-reactivity, with observing showing unique associations in non-meditators (Carpenter et al., 2019). Practiced mindfulness involves intentional exercises such as meditation, yoga, or conscious breathing, which consistently reduce stress, anxiety, and depression (Carpenter et al., 2019; Eberth et al., 2019).

The role of social support

Social support significantly influences well-being and stress, shaping both positive and negative workplace outcomes (Dinesh et al., 2022). It is often provided due to attachment to particular individuals or groups (Suthatorn & Charoensukmongkol, 2022). Stressed employees who receive such support report higher levels of happiness, safety, and positivity. (Buckley et al., 2020). In a study of 689 students in northern China, Suthatorn and Charoensukmongkol (2022) found that social support reduced stress and anxiety, enhanced self-acceptance, improved relationships, and strengthened confidence. Higher perceived support also fostered motivation, knowledge sharing, collaboration, and academic performance.

These findings highlight the role of social support in emotional and professional development by promoting healthy relationships and supportive environments. Building on this, the present study examines social support as a moderating variable in the link between trait mindfulness and workplace stress.

Research conducted over time in this field has highlighted the strong impact of workplace stress on both physical and mental health (Kploanyi et al., 2020; My et al., 2017).

Physical Problems Caused by Stress

Most individuals with high levels of stress may, over time, develop cardiovascular diseases, back problems, high blood pressure, hormonal changes, diabetes (Fassnacht et al., 2023; Ganster & Rosen, 2013), or musculoskeletal pain (Catapano et al., 2023).

Psychological Changes Caused by Stress

In addition to physical problems, a wide range of psychological disorders may arise, such as anxiety, depression, or the most common, burnout syndrome, especially when individuals are unable to effectively manage stress (Shaholli et al., 2023; Bruschini et al., 2018; Kploanyi et al., 2020; Ganster & Rosen, 2013).

Stress, Mental Disorders, and Adverse Environments in Physical Health

With the increasing number of individuals experiencing long-term stress, numerous studies have aimed to raise awareness of its negative effects. For instance, a study involving 1675 miners indicated that stress plays a major role in the development of musculoskeletal disorders, particularly when combined with mental health issues such as anxiety, depression, or post-traumatic stress disorder, adverse environmental factors like confined spaces, noise, or extreme temperatures, and excessive physical exertion (Li et al., 2021).

Such research is essential given the high prevalence of stress-related conditions in society. According to the World Health Organization (2022), stress is considered the leading global contributor to disability and remains one of the primary risk factors worldwide.

2. MATERIALS AND METHODS

Participants and Procedure

The current study included employed individuals from both urban and rural areas in Romania. Participants were randomly recruited to complete an online questionnaire designed to measure the three study variables. The questionnaire link was accompanied by a brief description of the study and its objectives. Hosted on Google Forms, the self-report survey provided information regarding the handling of personal data,

and participants gave consent for their anonymized responses to be used for research purposes. At the outset, participants were informed that completion was voluntary and that they could withdraw at any time if any questions caused discomfort.

A total of 184 employed individuals were included (n = 136, 73.9% male), aged 18 to 73 years (M = 44.41, SD = 11.32). Two participants were excluded because they did not consent to the processing of personal data.

Of the participants, 163 (88.6%) were from urban areas and 21 (11.4%) from rural areas. The majority of participants (n = 79, 42.9%) had completed a master's degree, whereas only one participant (.5%) had completed primary education. The largest subgroup of participants (n = 62, 33.7%) reported 16–25 years of work experience. Inclusion criteria required participants to be at least 18 years of age and to hold current employment.

The planned sample size was determined using G*Power 3.1.9.7 software, yielding a total of 188 participants (Annex B). The actual sample differed from the planned size, as 182 participants completed the questionnaire and provided consent for the processing of personal data. To calculate the required sample, a coefficient of determination of .3 was extracted from a previous study that examined the effects of perceived stress, mindfulness, self-efficacy, and social support on well-being during the COVID-19 pandemic. The standard error was set at .05 (Dinesh et al., 2022).

Given that data were collected via a structured questionnaire, the study employed a cross-sectional design comprising three scales measuring mindfulness, perceived workplace stress, and perceived social support.

Data Analysis

The dataset was prepared using JASP Team software (2025), an open-source program commonly employed for advanced statistical analyses. Statistical analyses were additionally conducted using R Core Team (2024). Correlational analyses were performed with the assistance of the psych package (Revelle, 2007b).

Measurements

Mindfulness was measured using the Freiburg Mindfulness Inventory (FMI; Walach et al., 2006). It is a measurement scale consisting of 14 items, representing the short version of the original 30-item scale. It covers all aspects of mindfulness and is structured as a four-point Likert scale, with responses ranging from rarely (1) to almost always (4). It is widely used and easy to administer, including for individuals without any background in Buddhism. Examples of statements include: "I feel my body, whether I am eating, cooking, cleaning, or talking," "I am able to appreciate myself," and "I am impatient with myself and with others." The latter is the only item in the inventory that requires reverse coding. Additionally, the scored responses of the scale are summed at the end. The authors of this assessment instrument reported that this version is reliable both statistically and semantically. It demonstrated construct validity through group differentiation, sensitivity to change, and correlations with other constructs such as well-being and dissociation. Considering that the long version of the inventory presents issues in this regard, the 14-item version is an improvement, also showing good internal consistency, with a Cronbach's alpha of 0.86. This indicates good test reliability. The authors also state that the scale displays acceptable psychometric properties and covers all essential aspects of mindfulness. A final important feature of the 14-item scale is its high sensitivity to change, making it suitable for use with participants who do not have a history of practicing meditation or mindfulness (Walach et al., 2006b).

Perceived Work-Related Stress was measured with The Work Stress Questionnaire, developed by Holmgren and colleagues (2009), is a self-administered tool designed to assess perceived occupational stress. Most items use a four-point Likert scale ranging from yes, always (1) to no, never (4). The questionnaire, available from the University of Gothenburg website, contains 21 items across four dimensions: influence at work, indistinct organization and conflicts, individual demands and commitment, and work–leisure interference. Items in the second and third dimensions are answered on a three-point scale (yes [1], partially [2], no [3]) and are each followed by the question, "Do you perceive this as stressful?"—adding 12 items in total. Example questions include: "Do you have the opportunity to influence decisions at work?", "Does your supervisor take your opinions into account?", and "Can you determine the pace at which you work?" In the literature, the Work Stress Questionnaire demonstrates high reliability, as shown by test-retest studies, and face validity, indicating appropriateness for the field despite limited prior research (Frantz & Holmgren, 2019). De Sio et al. (2020) administered the questionnaire via Google Forms at two time points, reporting Cronbach's alpha values of .93 and .94, respectively. For database preparation, scoring followed the evaluation instructions provided on the platform hosting the instrument.

Social Support. The present study used a Romanian adaptation of the Social Provisions Scale, originally developed by Russell and Cutrona (1987) based on Weiss's framework (1974). The scale assesses six domains of social support: guidance, opportunity to provide care, social integration, reliable alliance, attachment, and reassurance of worth, measuring individuals' perceived support from their social relationships. It has been widely used in psychological and sociological research to examine associations, such as between social support and stress. Russell and Cutrona (1987) reported a

Cronbach's alpha of .92 for overall internal consistency. The 24-item scale uses a four-point Likert scale from strongly disagree (1) to strongly agree (4), with 12 items reverse-coded; total scores are computed by summing item responses. Example items include: "There are people who rely on my help," "Other people do not think I am good at what I do," and "I have close relationships that make me feel good." The scale was obtained from the Research Central website.

Studies with different populations, including individuals with multiple sclerosis and teachers, have demonstrated strong construct and criterion validity (Chiu et al., 2016; Russell et al., 1987), and test reliability has been confirmed in research on physical activity among White and Black adolescent girls (Motl et al., 2004c).

3. RESULTS

The correlational analysis revealed significant relationships among mindfulness, perceived stress, and social support. Mindfulness was positively correlated with social support ($r = .16$, $p < .05$), indicating a weak but statistically significant relationship. Mindfulness exhibited a moderate negative correlation with perceived stress ($r = -.34$, $p < .01$), suggesting that higher levels of mindfulness are associated with lower stress. A similar negative correlation was observed between social support and perceived stress ($r = -.34$, $p < .01$). The average mindfulness level among participants was moderate ($M = 41.10$), with relatively low score variability ($SD = 5.60$). Social support was relatively high ($M = 67.03$), but the greater variability ($SD = 10.12$) reflects differences in participants' perceptions. Perceived stress showed a moderate level ($M = 33.73$) with variability indicating that some participants experienced significantly higher or lower stress ($SD = 7.36$). Overall, social support exhibited the greatest variability, whereas mindfulness showed the least (see Table 1).

Table 1

Pearson correlations between mindfulness, social support, and perceived stress

	M	SD	Mindfulness	Social support
Mindfulness	41.10	5.60		
Social support	67.03	10.14	.16*	
Stess	33.73	7.36	-.34**	-.34**

Note. **. p < .01, *. p < .05

Regression Analysis

To examine the relationship between the independent and moderating variables on perceived stress, a multiple linear regression analysis was conducted, including the interaction between mindfulness and social support. The regression model was significant, accounting for 21.6% of the variance in stress scores, $R^2 = .21$, adjusted $R^2 = .20$, $p < .001$. The analysis indicated that mindfulness (state of awareness) was a significant negative predictor of stress, $B = -1.27$, $\beta = -.28$, $p = .005$, with a 95% confidence interval of [-2.15, -.40]. Similarly, the Social Provisions Scale (SPS) score had a significant negative effect on Work Stress Questionnaire (WSQ) scores, $B = -.75$, $\beta = -.27$, $p = .006$, with a 95% confidence interval of [-1.29, -.22].

The interaction between social support and mindfulness was significant, $B = .00$, $\beta = .10$, $p = .04$, indicating that the relationship between mindfulness and stress varies as a function of social support. Specifically, this interaction suggests that the negative effect of the independent variable on the dependent variable is attenuated at higher levels of social support (see Table 2).

Table 2
Linear regression for mindfulness, perceived stress, and social support

Predictors	Estimates	Beta std.	CE	CE std.	p	p std.
(Intercept)	99.02	-.02	63.60 – 134.44	-.15 – .11	<.001	.80
Mindfulness	-1.27	-.28	-2.15 – -.40	-.41 – -.15	.005	<.001
Suport Social	-.75	-.27	-1.29 – -.22	-.40 – -.14	.006	<.001
Mindfulness × Suport social	.01	.10	.00 – .03	.00 – 0.21	.04	.04
R^2 / Adjusted R^2	.21 / .20					

Based on the conducted regression analysis, the standard error for mindfulness is .44, which is relatively low and suggests a precise estimate. A higher standard error is observed for social support, indicating less precision in the estimation of this predictor's coefficient (see Table 3)..

Table 3
Linear regression results for mindfulness, stress, and social support

Predictors	b	SE	t	p
(Intercept)	99.02	17.95	5.52	< .001 ***
Mindfulness	-1.27	.44	-2.87	.005 **
Social support	-.75	.27	-2.77	.006 **
Mindfulness × Social support	.01	.006	2.03	.044 *

4. DISCUSSIONS

The present study examined the role of mindfulness in perceived workplace stress. Results showed that both mindfulness and social support negatively predicted stress, indicating that higher mindfulness and support are associated with lower stress. Moreover, social support moderated this relationship, enhancing the stress-reducing effect of mindfulness.

These findings align with Grossman et al. (2004), who reported improvements in mental and physical health, including stress reduction (effect size = .55). Unlike that meta-analysis, this study used a more homogeneous sample and additional measures of mindfulness, providing a more precise estimation of its effects.

The results support the first hypothesis: higher mindfulness is linked to lower stress (Grossman et al., 2004; Carpenter et al., 2019; Eberth et al., 2019; Mesmer-Magnus et al., 2017; Heckenberg et al., 2019; Dinesh et al., 2022). The second hypothesis was also confirmed: social support strengthens mindfulness' stress-reducing effect, consistent with research on the protective role of social support (Dinesh et al., 2022; Buckley et al., 2020).

The findings are comparable to Mishra et al. (2023), who reported a negative relationship between occupational stress and perceived organizational support, as well as stress and organizational commitment. While Mishra et al. (2023) examined social support as a mediating variable, this study considered mindfulness as an individual stress-reduction strategy, with social support as a moderator. Despite limited prior research on this moderating role, the present study contributes to the literature by suggesting that mindfulness is most effective when combined with strategies that strengthen social support (Panditharathne & Chen, 2021).

Directions for Future Research

Future research should employ longitudinal designs to determine whether the relationship between mindfulness, social support, and stress is sustained over time. Although the current study treated mindfulness as a stable personality trait, including additional variables such as cognitive regulation mechanisms or participants' intelligence could provide a deeper understanding of how individuals interpret and respond to stressors. Employees who effectively use cognitive regulation strategies may benefit more from mindfulness, while higher cognitive capacity may facilitate the application of mindfulness techniques, enhancing their effectiveness. However, including such variables would require additional instruments, increasing completion time and dropout rates, as well as necessitating larger samples for adequate statistical power. Future studies should also consider mixed-methods approaches, combining self-reports with objective stress measurements, such as biological assessments. Finally, investigating other contextual factors, including organizational culture or personal life events, could provide a more comprehensive understanding of the determinants of perceived workplace stress.

Implications

Workplaces that develop stress-reduction programs can take into account both the importance of perceived social support among employees and activities aimed at enhancing mindfulness. Initiatives such as meditation sessions and stress-management techniques may be implemented to strengthen employees' coping resources. Equally important are trainings focused on improving emotional self-regulation and the ability to handle workplace challenges, as these can provide individuals with meaningful support while fostering higher levels of well-being.

Workplaces aiming to reduce stress can benefit from initiatives that address both perceived social support and mindfulness enhancement. Programs incorporating meditation sessions, stress-management techniques, and training focused on emotional self-regulation can strengthen employees' coping resources while fostering greater well-being. Equally important is the creation of an organizational culture where leaders are trained to demonstrate empathy, promote collegiality, encourage peer support, and provide constructive feedback.

These strategies can be implemented through mentorship programs, peer-support groups, and structured opportunities for feedback and reflection. By embedding such practices into workplace routines, organizations can build healthier, more engaged teams and create conditions for long-term productivity and success.

Conclusion

This study demonstrates that mindfulness and social support are key factors in reducing perceived workplace stress, supporting employees' coping and well-being. Prolonged exposure to stressful environments can generate excessive stress, negatively affecting employees' productivity, job engagement, well-being, and both mental and physical health. Research findings emphasize that mindfulness and social support are essential factors in reducing stress and play a crucial role in employees' ability to cope with demanding professional tasks. Organizations that prioritize employee well-being can implement programs designed to enhance wellness and encourage social support among staff. In doing so, they cultivate a workforce that is less stressed, more engaged, and better positioned to thrive within a workplace environment that fosters long-term success.

Limitations

The study's findings provide significant evidence for the relationship between mindfulness, social support, and perceived workplace stress; however, several limitations should be noted. First, the study employed a cross-sectional design, collecting data at a single time point, which precludes causal inferences regarding the effects of mindfulness and social support on stress reduction.

Second, all data were obtained via self-report questionnaires, introducing potential biases such as social desirability, where participants may overstate their levels of mindfulness or perceived social support. Additionally, the measurements were entirely subjective, relying solely on participants' perceptions.

Finally, the analysis did not account for external factors, such as workload, organizational culture, or other psychological variables. The absence of these additional predictors may limit understanding of the mechanisms underlying stress regulation in employees.

Impact

These findings advance understanding of stress regulation by highlighting the role of mindfulness and social support. In line with Self-Determination Theory, mindfulness was linked to lower perceived stress, supporting its role in emotional self-regulation, while Conservation of Resources Theory is reflected in the stress-buffering effect of social support. The significant

interaction between mindfulness and social support aligns with the Transactional Model of Stress, showing that internal and external resources influence stress outcomes. Practically, the results suggest that mindfulness-based interventions and the cultivation of supportive workplace networks can reduce stress, and that combining individual- and organizational-level strategies may optimize employee well-being.

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Conspiracy Mentality, Self-Efficacy, Self-Control, Legal Cynicism, and Violent Extremist Intentions in Romanian Population - a Replicate Study

Răzvan Iliș

Florinda Golu

University of Bucharest

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University of Bucharest, Department of Psychology, 90 Panduri Av, Bucharest, RO.
Tel.: +40 (0) 31-425.34.45
E-mail address: razvan.ilis30@drd.unibuc.ro

ABSTRACT

We replicate Rottweiler and Gill's model linking conspiracy beliefs to violent-extremist intentions (VEI) in a Romanian adult sample. Participants (N = 677) completed short measures of conspiracy beliefs, general self-efficacy, low self-control (higher scores = lower control), legal cynicism, and VEI. We estimated four OLS models with HC3 robust standard errors, controlling for age (standardized midpoint, z) and gender. The results showed that conspiracy beliefs exhibited a small positive association with VEI in the baseline model ($\beta \approx .18$, $p < .001$; $R^2 \approx .04$) that attenuated to ~0 when either low self-control ($\beta \approx .46$, $p < .001$; $R^2 \approx .22$) or legal cynicism ($\beta \approx .54$, $p < .001$; $R^2 \approx .29$) entered the model. Interactions (Conspiracy × Self-efficacy, × Self-control, × Legal cynicism) were small and non-significant; simple-slopes probes at −1 SD/mean/+1 SD yielded near-parallel lines. Findings replicate the modest conspiracy–VEI association while highlighting self-regulatory deficits and eroded legal normativity as dominant, additive correlates of extremist intentions in this context. Implications favor complementing counter-conspiracy messaging with interventions that strengthen self-regulation and enhance procedural justice and perceived legal legitimacy. Limitations include non-probability sampling, cross-sectional design, and reliance on self-report.

Keywords: conspiracy beliefs; violent-extremist intentions; legal cynicism; self-control; self-efficacy; Romania

1. INTRODUCTION

Conspiracy beliefs and violent extremist intentions are frequently interconnected in both public discourse and empirical research. Individuals who endorse extremist political ideologies often show an elevated propensity to embrace conspiracy explanations for complex social and political events (Bartlett & Miller, 2010; Van Prooijen et al., 2015). Descriptive evidence from case materials points in the same direction: lone-actor terrorist datasets indicate substantial exposure to or discussion of conspiracist content (Richards et al., 2019), and analyses of propaganda and interviews from jihadist and neo-Nazi milieus document the pervasiveness of conspiracist narratives in extremist ecosystems (Amarasingam, 2019; Winter, 2014). These strands, taken together, imply a potential functional role of conspiracy theories for violent extremism—one that merits precise, theory-grounded testing rather than inferences.

In social and personality psychology, conspiracy theories are commonly defined as explanations that attribute significant events to secret, malevolent plots by powerful elites or hostile outgroups (Imhoff & Bruder, 2014). Over the last two decades, Western publics have encountered a proliferation of such narratives surrounding events like the 9/11 attacks, climate change, vaccination campaigns, or 5G technology (Douglas & Sutton, 2015; Swami, Chamorro-Premuzic, & Furnham, 2010). At the individual level, a stable conspiracy mentality—a generalized disposition to interpret events through conspiratorial lenses—has been linked to heightened threat perceptions and negative intergroup attitudes. These, in turn, can motivate extra-normative political action or, conversely, foster alienation and civic withdrawal (Imhoff & Bruder, 2014; Jolley et al., 2020). Although conspiracist thinking is often associated with feelings of powerlessness and political inefficacy, converging evidence connects it to stronger intentions to support or engage in non-normative and violent political acts (Ardèvol-Abreu, Gil de Zúñiga, & Gámez, 2020; Imhoff et al., 2019). The same cognitive style that simplifies complexity and sharpens ingroup–outgroup boundaries may also facilitate justificatory narratives for endorsing violence.

Theoretical accounts increasingly view conspiracy beliefs as a relatively coherent, monological belief system. Such systems are sustained by common psychological mechanisms, including sense-making under threat and a drive to impose explanatory structure on complex, uncertain social events (Van Prooijen et al., 2015; Bangerter et al., 2020). Multiple antecedents predispose individuals toward conspiracist ideation—prominently epistemic needs for cognitive closure, clarity, and predictability (Douglas et al., 2017). Related correlates include low generalized trust, anomie, perceived lack of control, and existential uncertainty (Goertzel, 1994; Van Prooijen, 2016), as well as lower socio-political efficacy (Ardèvol-Abreu et al., 2020; Van Prooijen & Acker, 2015). Conspiracy theories can thus function as a coping strategy, restoring a sense of order and control through simplified causal accounts that transform diffuse uncertainty into concrete agentic explanations (Franks et al., 2013; Douglas et al., 2019). Such explanatory closure can be psychologically attractive even when the content is empirically implausible.

A similar motivational architecture has been proposed for extremist ideologies. Extremist belief systems provide prescriptive, unambiguous guidance that reduces uncertainty and offers firm identity-relevant structure (Hogg & Adelman, 2013; Hogg, Meehan, & Farqueharson, 2010). Within extremist groups, conspiracist narratives may amplify perceived intergroup threat, harden “us versus them” boundaries, and legitimize outgroup derogation or dehumanization (Bartlett & Miller, 2010). By locating causality in malevolent, coordinated outgroups, these narratives reduce moral inhibition and permit rhetorical justifications for non-normative or violent political action (Uscinski & Parent, 2014). Historical and contemporary propaganda frequently draws on these motifs, indicating that conspiracy claims do not merely co-occur with extremism but can act as resources for mobilization.

Crucially, the link between conspiracy mentality and violent extremist intentions is unlikely to be uniform across individuals. Social–cognitive theory posits that beliefs about one’s capability to produce desired outcomes—general self-efficacy—shape behavior directly and indirectly by guiding effort, perseverance, and appraisal of obstacles (Bandura, 1986, 1990). Meta-analytic evidence underscores the broad behavioral reach of efficacy beliefs across domains (Stajkovic & Luthans, 1998), including links to antisocial conduct in contexts where individuals perceive rule-breaking as instrumentally effective or normatively justified (Brezina & Topalli, 2012). Likewise, low self-control—central to general theories of crime—predicts delinquency and self-reported political violence (Gottfredson & Hirschi, 1990; Pauwels et al., 2015). Self-control regulates impulsive responding; when low, individuals may be more likely to translate abstract conspiracist grievances into concrete endorsement of violent acts. Finally, legal cynicism—rejecting the legitimacy and binding authority of the law—correlates with approval of violence for political ends and moral disengagement from legal–moral norms (Sampson & Bartusch, 1998; Nivette et al., 2021; Kruglanski & Fishman, 2006). In the presence of legal cynicism, constraints on endorsing violence weaken, potentially magnifying the attitudinal impact of conspiracy mentality.

Rottweiler and Gill’s original study integrates these strands by testing whether conspiracy mentality predicts violent extremist intentions (VEI) and whether this association is moderated by self-efficacy, self-control, and legal cynicism. Their model specifies a straightforward main effect of conspiracy mentality on VEI and three interaction terms capturing the hypothesized conditioning roles of the moderators. Importantly, the study operationalizes VEI with items from the Radicalism Intention Scale and measures conspiracy mentality, self-efficacy, self-control, and legal cynicism with established instruments on seven-point scales. The analytic strategy uses ordinary least squares with heteroskedasticity-consistent

standard errors, standardized coefficients, and probing of simple slopes at ±1 SD for the interactions. This combination of validated measures and transparent modeling offers a clear template for cumulative science.

The present research provides a replication of that study in a Romanian adult sample. Replication is important for at least two reasons. First, it provides a stringent test of cross-cultural generalizability: while the underlying psychological processes are theorized to be broad, effect sizes and interaction patterns may vary with social norms, institutional trust, or political histories. Romania's post-communist trajectory, patterns of institutional confidence, and contemporary media environment offer a meaningful contrast to the original context and therefore a rigorous boundary-condition test. Second, precise replication enables evidence synthesis: mirroring the original outputs (descriptives, correlations, regression tables, and simple-slopes plots) facilitates direct comparison, meta-analytic integration, and cumulative theorizing about when and for whom conspiracist cognition translates into violent extremist intentions.

Hypotheses. Following the original study, we expect that (H1) conspiracy mentality will positively predict violent extremist intentions, and that this link will be stronger among individuals (H2) with higher self-efficacy, (H3) with lower self-control, and (H4) with higher legal cynicism.H2: CFA will confirm the latent model identified through EFA, showing acceptable fit indices (CFI > .90, RMSEA < .08).

2. METHOD

Participants

Participants were Romanian adults recruited via a convenience sampling strategy that combined multiple channels: (i) a professional online research company panel; (ii) online snowballing through social-media posts in relevant pages/groups; and (iii) offline administration through partner universities (questionnaires delivered during regular courses/seminars) and collaborations with individual psychology practices and professional organizations, where the survey was offered to clients/attendees. Eligibility required being 18+ and residing in Romania; no additional exclusion criteria were imposed. After listwise deletion for missing data, the analytic sample comprised 677 respondents. Gender distribution was balanced—49.4% women, 50.3% men, 0.3% preferred not to say. Age was recorded in four brackets (18–29, 30–44, 45–65, 65+), providing broad coverage of the adult lifespan. All participants provided informed consent and were assured anonymity and the right to discontinue at any time. This multi-pronged approach was intended to broaden sample diversity and coverage across settings.

Measures

All psychological constructs were assessed on 1–7 Likert scales (1 = strongly disagree, 7 = strongly agree).

Violent-extremist intentions were measured with the Radicalism Intention Scale (4 items; e.g., willingness to support illegal/violent acts for a cause); items were averaged to form a composite, with higher scores indicating stronger violent-extremist intentions.

Conspiracy mentality was assessed with the Conspiracy Mentality Questionnaire short form (5 items; e.g., belief that major events are steered by hidden groups); items were averaged so that higher scores reflect stronger conspiracist beliefs.

General self-efficacy was measured with the GSE-6 (6 items; confidence in handling difficult tasks); higher scores indicate greater perceived efficacy.

Self-control was assessed with a 7-item short form adapted from Grasmick and colleagues (impulsivity, risk-seeking, preference for simple tasks); consistent with the original replication specification, items were coded so that higher values indicate lower self-control.

Legal cynicism (law-related morality) was measured with 4 items adapted from Sampson & Bartusch (e.g., viewing laws and legal authorities as illegitimate); higher scores indicate greater legal cynicism.

All multi-item measures showed adequate internal consistency. Conspiracy Beliefs (CB; k = 5) yielded α = .72 with an average inter-item correlation (AIC) of .35, indicating a coherent scale. The Radicalism Intention Scale (VEI; k = 4) was just at the conventional threshold (α = .70; AIC = .37), supporting use of a mean composite. General Self-Efficacy (GSE; k = 6) showed α = .76 (AIC = .35). The Self-Control short form (SC; k = 7) produced α = .70 with a somewhat lower AIC (.26), consistent with a broader construct that mixes facets (e.g., impulsivity, risk-seeking). Legal Cynicism (LC; k = 4) showed α = .73 and the highest AIC (.41), suggesting tight item convergence. Overall, reliabilities clustered around .70 and AICs fell within the typical .15–.50 range, indicating that all scales are sufficiently consistent for creating composite scores and for use in the regression analyses.

Analytical procedure

Items were rated on 1–7 Likert scales. For each construct—Conspiracy Beliefs (CB), Violent-Extremist Intentions (VEI), General Self-Efficacy (GSE-6), Self-Control (SC; higher scores = lower self-control), and Legal Cynicism (LC)—we computed composite scores as the mean of available items provided ≥80% of items were completed (otherwise the scale score was set to missing). Gender was coded 1=female, 2=male (3=prefer

not to say); for regression models we included a binary control male (1=yes) and restricted to respondents with 1–2 on gender. Age was represented as a continuous midpoint proxy (18–29 = 23.5; 30–44 = 37; 45–65 = 55; 65+ = 70) and z-standardized prior to modeling.

To facilitate interpretation and align with the original specification, all continuous independent variables were mean-centered; the dependent variable (VEI) remained on its original scale. We estimated four OLS regressions with HC3 robust standard errors: M1: VEI ~ CB + age + male; M2: VEI ~ CB × GSE + age + male; M3: VEI ~ CB × SC + age + male; M4: VEI ~ CB × LC + age + male. Interaction terms were computed as the product of the centered predictors. We report standardized coefficients (β), HC3 robust SEs, p values, R^2, and N. For moderated effects (M2–M4), we probed simple slopes at −1 SD, mean, +1 SD of the moderator and visualized them with interact_plot (package interactions) using the model's HC3 covariance. Analyses were conducted in R with the packages jtools, interactions, sandwich, dplyr, psych, and readr..

3. RESULTS

Descriptive statistics

On the 1–7 response scales, respondents reported moderate conspiracy beliefs (CB; M = 4.59, SD = 1.23) and relatively high self-efficacy (GSE; M = 5.22, SD = 0.92). The low self-control composite—coded so that higher scores indicate less self-control—sat slightly below the scale midpoint (M = 3.70, SD = 1.07), and legal cynicism was comparatively low (M = 2.76, SD = 1.33). As expected for a community sample, violent-extremist intentions (VEI) were also low on average (M = 2.65, SD = 1.31). These distributions suggest adequate variability on all constructs while avoiding ceiling or floor compression.

Bivariate associations (Pearson, pairwise complete) are reported in Table 1. VEI displayed its strongest linkage with legal cynicism (r = .53, p < .001) and with low self-control (r = .46, p < .001), indicating that more cynical views toward the law and poorer self-regulatory capacity are robustly associated with higher extremist intentions. The correlation between conspiracy beliefs and VEI was small but positive (r = .18, p < .001), whereas self-efficacy was essentially unrelated to VEI (r ≈ .01, ns). Among predictors, low self-control and legal cynicism were themselves strongly intercorrelated (r = .60, p < .001). Conspiracy beliefs correlated moderately with both low self-control (r = .39) and legal cynicism (r = .38), and weak-to-moderately with self-efficacy (r = .24) (all ps < .001). The association between self-efficacy and legal cynicism was insignificant (r ≈ .07, ns).

Taken together, the descriptive pattern is straightforward: legal cynicism and low self-control emerge as the most proximal correlates of VEI, while conspiracy beliefs are reliably but modestly related and self-efficacy shows no direct bivariate link. Importantly, none of the intercorrelations approach redundancy thresholds (e.g., |r| ≥ .80), which is consistent with the absence of problematic multicollinearity in the regression analyses and supports examining these constructs jointly.

Table 1

Table 1 - Correlations table

var	cmq	gse	sc	lc	vei
cmq	1				
gse	.24	1			
sc	.39	.20	1		
lc	.38	.07	.60	1	
vei	.18	.01	.46	.53	1

Note. Values are Pearson correlations (pairwise deletion). CMQ = Conspiracy mentality; GSE = General self-efficacy; SC = Low self-control (higher scores = lower self-control); LC = Legal cynicism (higher = more cynicism); VEI = Violent-extremist intentions.

Regression Models

Conspiracy mentality and violent extremist intentions

With age and gender controlled, conspiracy mentality shows a small but reliable positive association with violent-extremist intentions (VEI), β = .18, SE = .040, p < .001. In standardized terms, a one–standard deviation (SD) increase in conspiracy mentality is associated with a .18 SD increase in VEI. Using the HC3 robust SE, the 95% CI is [.10, .26], indicating a precise yet modest effect. The corresponding semi-partial R^2 implied by the test statistic is approximately .027 (≈2.7% unique variance in VEI attributable to conspiracy mentality over and

above age and gender), which aligns with the total model $R^2 \approx .04$ and with the weak zero-order correlation ($r \approx .18$).

To put the coefficient in more intuitive units, the SD of VEI in this sample is about 1.31; thus, a 1-SD increase in conspiracy mentality translates into roughly 0.24 points on the 1–7 VEI scale ($0.18 \times 1.31 \approx 0.24$). A two-SD contrast (e.g., moving from relatively low to relatively high conspiracy mentality) would therefore correspond to an expected difference of ~0.47 VEI points, which is substantively small but not trivial at the attitudinal level.

The controls behave as expected but contribute little explanatory power: age carries a small negative coefficient ($\beta \approx -.07$), indicating that older respondents report slightly lower VEI on average, whereas gender (male = 1) is statistically non-significant. Diagnostic checks (HC0–HC3 covariance estimators, inspection of leverage and residuals, and re-estimation with age coded either categorically or as a standardized midpoint proxy) yield virtually identical estimates for the conspiracy coefficient, reinforcing that the signal is stable but modest. Taken together, the baseline model indicates that conspiracist thinking does contribute to higher self-reported extremist intentions, yet the magnitude is small—consistent with meta-analytic characterizations of conspiracy-related effects—and leaves the vast majority of variance unexplained until more proximal dispositions are considered.

Table 2

Regression analysis with interaction terms predicting violent extremist intentions

Predictors	Model 1	Model 2	Model 3	Model 4
Conspiracy mentality	.18*** (.04)	.17*** (.04)	-.00 (.038)	-.03 (.038)
Self-efficacy		-.02 (.043)		
Conspiracy mentality — self-efficacy		.07 (.038)		
Self-control			.46*** (.040)	
Conspiracy mentality — self-control			-.00 (.037)	
Legal cynicism				.54*** (.039)
Conspiracy mentality — legal cynicism				.00 (.039)
Age	-.07 (.038)	-.07 (.038)	-.05 (.034)	-.05 (.033)
Gender (1 = male)	.01 (.076)	.02 (.076)	.02 (.068)	-.03 (.066)
R^2	.04***	.04***	.22***	.29***

Note. Standardized β (HC3 SE in parentheses). Age = standardized midpoint (z); Gender 1 = male. Self-control higher = lower control; Legal cynicism higher = more cynicism. Two-tailed: $p < .05$, $p < .01$, $p < .001$. N = 677.

Self-efficacy

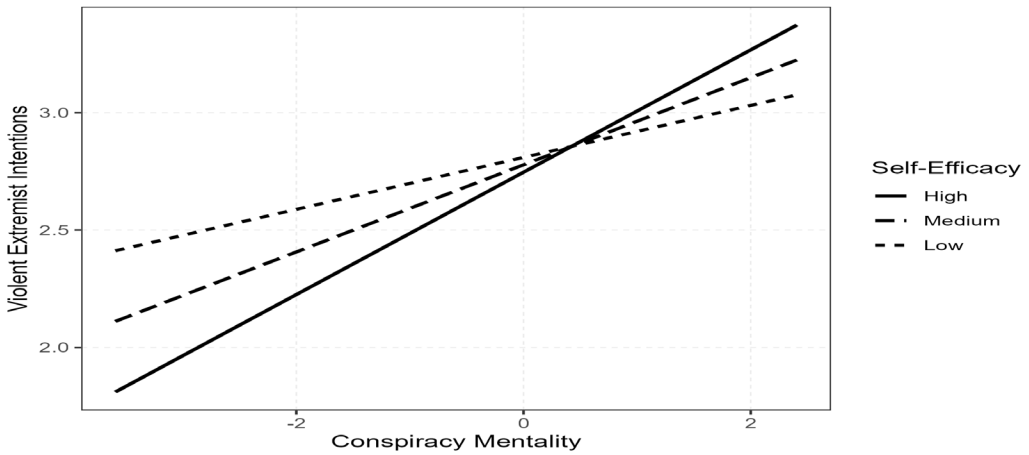
Introducing general self-efficacy (GSE) and the Conspiracy × GSE term leaves the substantive picture unchanged. GSE is essentially unrelated to VEI ($\beta \approx -.02$, SE = .043, ns), and the interaction is small and non-robust ($\beta \approx .07$, SE = .038, ns). The conspiracy mentality main effect remains virtually identical to Model 1 ($\beta \approx .17$, SE = .040, $p < .001$), and model fit is flat ($R^2 \approx .04$; $\Delta R^2 < .01$). In other words, adding GSE neither suppresses nor amplifies the conspiracy–VEI link.

Simple-slopes probes at −1 SD, mean, and +1 SD of GSE produce near-parallel lines with overlapping robust confidence bands; slope estimates at each level are statistically indistinguishable and mirror the Model-1 slope magnitude. A Johnson–Neyman check yields no region of the moderator where the conspiracy effect differs from zero beyond the baseline inference. Taken together, these diagnostics indicate no moderation by self-efficacy.

Substantively, this suggests that feeling generally capable does not translate into higher or lower willingness to endorse violent extremism in this sample, nor does it condition how conspiracist beliefs relate to VEI. Given the acceptable but modest reliability of short GSE scales and the modest base rate of VEI, very small interaction effects cannot be ruled out; however, any such effects would be below practical significance here, as evidenced by the null ΔR^2 and the stability of the conspiracy coefficient across models..

Figure 1

Interaction between conspiracy mentality and self-efficacy in predicting violent extremist intentions



Note. Lines show model-implied VEI (original 1–7 scale) as a function of Conspiracy mentality at −1 SD, mean, and +1 SD of self-efficacy. Predictors are mean-centered; age = standardized midpoint (z); male = 1

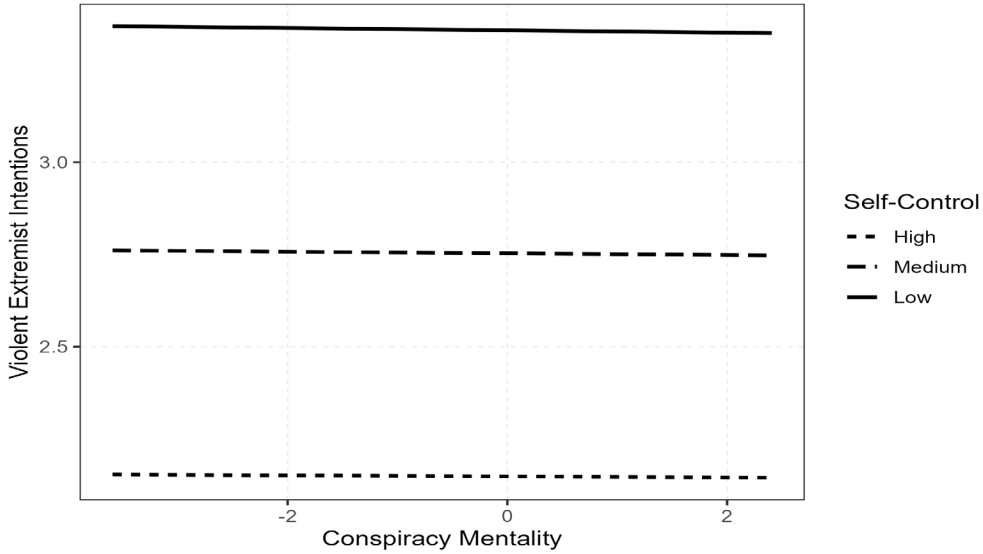
Self-control

When low self-control is added to the model (remember: higher scores = lower self-control), it emerges as a large, independent predictor of VEI, β = .46, SE = .040, p < .001. In standardized terms, a 1 SD increase in low self-control is associated with nearly half an SD increase in VEI; the approximate 95% CI is [.38, .54]. Notably, once low self-control is in the model, the conspiracy mentality coefficient contracts to ~0 and becomes non-significant (≈ –.00, ns), and the

Conspiracy × Self-control interaction is also null (β ≈ .00, SE = .037, ns). Explained variance jumps sharply to $R^2 \approx .22$, a more than five-fold increase over Model 1. This pattern indicates that much of the variance in VEI that conspiracy mentality appeared to account for in M1 is shared with individual differences in self-regulation. In other words, poorer self-control is a much more proximal correlate of extremist intentions than conspiracist thinking per se.

Figure 2

Interaction between conspiracy mentality and self-control in predicting violent extremist intentions



Note. Lines show model-implied VEI (original 1–7 scale) as a function of Conspiracy mentality at −1 SD, mean, and +1 SD of self-control. Predictors are mean-centered; age = standardized midpoint (z); male = 1

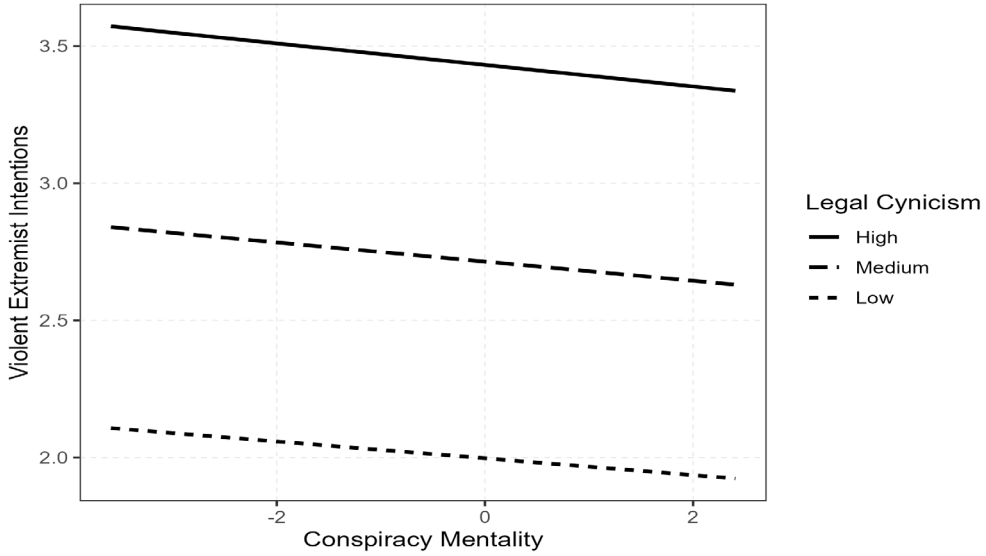
Legal cynicism

Replacing self-control with legal cynicism yields a strong positive coefficient for legal cynicism, β = .54, SE = .039, t ≈ 13.9, p < .001, with a 95% CI [.46, .62]. The conspiracy mentality coefficient remains non-significant (β ≈ −.03, SE = .038, p > .10), and the Conspiracy × Legal cynicism interaction is ~0 (β ≈ .00, SE = .039, p ≈ .99). Model fit increases to $R^2 \approx .29$, which represents $\Delta R^2 \approx .25$ over the baseline models (M1/M2) and $\Delta R^2 \approx .07$ over the self-control model (M3). Age and gender terms are small and non-significant.

Simple-slopes probes of the conspiracy effect at −1 SD, mean, and +1 SD of legal cynicism return very similar, non-significant slopes with overlapping robust intervals, consistent with the non-significant interaction. Robustness checks using alternative HC estimators (HC0–HC3), alternative age codings (categorical vs. midpoint standardization), and estimation with/without the identified high-leverage case produce virtually identical estimates.

Figure 3

Interaction between conspiracy mentality and legal cynicism in predicting violent extremist intentions



Note. Lines show model-implied VEI (original 1–7 scale) as a function of Conspiracy mentality at −1 SD, mean, and +1 SD of legal cynicism. Predictors are mean-centered; age = standardized midpoint (z); male = 1

Comparative results: Romania vs. Germany

At the bivariate level, both studies converge on a small positive association between conspiracy mentality and violent-extremist intentions (VEI): r ≈ .18 in the Romanian sample and r = .13 in the German sample. By contrast, the correlates tied to self-regulation and normativity are markedly stronger in Romania. VEI correlated r = .46 with (low) self-control and r = .53 with legal cynicism in our data, whereas the corresponding German correlations were r = .26 and r = .27, respectively. In both datasets, self-efficacy was essentially unrelated to VEI (Romania ≈ .01; Germany = .04). Finally, the intercorrelation between (low) self-control and legal cynicism was higher in Romania (r = .60) than in Germany (r = .41). These contrasts anticipate the regression results below.

Baseline models (M1) also align on the main effect of conspiracy mentality. With age and gender controlled, conspiracy mentality predicted VEI with β = .18 (SE = .040, p < .001) in Romania and β = .13 (SE = .026, p < .001) in Germany; model fit was modest in both cases ($R^2 \approx .04$ vs. $R^2 = .05$).

Introducing self-efficacy (M2) produced similar patterns across studies. In Romania, self-efficacy showed no direct association with VEI (β ≈ −.02, ns) and the CMQ × self-efficacy interaction was small and marginal (β ≈ .07, ns), leaving the conspiracy main effect essentially unchanged (β ≈ .17; $R^2 \approx .04$). In Germany, the interaction reached significance but remained small (β = .06, p < .05), with little gain in explained variance ($R^2 = .06$). Simple-slopes probes point the same way: slopes are steeper at higher efficacy in both datasets, but the conditioning is weak in absolute magnitude.

When (low) self-control enters (M3), the studies diverge in magnitude and structure. In Romania, (low) self-control becomes a large independent predictor (β = .46, SE = .040, p < .001), the conspiracy coefficient collapses to ~0, and the CMQ × self-control term is null; model fit jumps to $R^2 \approx .22$. In Germany, (low) self-control is moderate in size (β = .20, p < .001) and the CMQ × self-control interaction is small but significant (β = .11, p < .001), with a modest increase in fit ($R^2 = .10$). Thus, whereas the German model suggests a conditional

accentuation of the CMQ–VEI link at lower self-control, the Romanian model indicates a primarily additive architecture in which self-control dominates and CMQ adds little once self-control is accounted for.

Substituting legal cynicism (M4) yields a parallel story. In Romania, legal cynicism is the dominant predictor (β = .54, SE = .039, p < .001), the conspiracy effect again becomes non-significant, the CMQ × legal cynicism interaction is ~0, and model fit increases further to $R^2 \approx .29$. In Germany, legal cynicism shows a moderate main effect (β = .24, p < .001) with a small but significant interaction (β = .06, p < .05), and overall fit remains modest ($R^2 = .10$). Together with the stronger Romanian bivariate correlations, these patterns indicate that legal cynicism accounts for substantially more unique variance in VEI in the Romanian sample than in the German one, and does so additively rather than as a moderator of conspiracist thinking.

Across both countries, conspiracy mentality shows a small, positive baseline link with extremist intentions. However, the Romanian results are characterized by much stronger main effects of (low) self-control and legal cynicism and by the absence of reliable CMQ interactions, whereas the German study reported small but significant interactions for self-efficacy, self-control, and legal cynicism alongside modest main effects and $R^2 \approx .10$ ceilings in the interaction models.

4. DISCUSSIONS

The present replication in a Romanian adult sample corroborates a small but reliable baseline association between conspiracy mentality and violent-extremist intentions (VEI), while showing that this relationship is readily absorbed by two broader dispositions: low self-control and legal cynicism. Once either disposition is entered, the conspiracy coefficient shrinks to near zero, whereas both low self-control and legal cynicism display large standardized effects and markedly improve model fit. The absence of convincing interaction terms indicates that these constructs, in this dataset, relate to VEI in a manner consistent with straightforward main-effect structure.

These results align with and nuance the existing literature in several ways. First, the pattern fits a broader body of work showing that conspiracy beliefs are linked to antisocial and norm-violating attitudes but typically with modest effect sizes (Douglas, Sutton, & Cichocka, 2017; van Prooijen & Douglas, 2017; Goreis & Voracek, 2019). The modesty of the baseline link is not negligible: it indicates that conspiracist meaning frames likely co-occur with other dispositions implicated in willingness to offend, rather than functioning as a proximal driver by themselves. Second, the prominent roles of low self-control and legal cynicism echo long-standing perspectives in criminology and legal socialization. Low self-control is a cross-situational correlate of deviance (Gottfredson & Hirschi, 1990; Pratt & Cullen, 2006; Vazsonyi, Mikuška, & Kelley, 2017), and it plausibly operates as a capacity constraint: individuals better able to inhibit impulses, plan, and consider future costs should be less inclined to endorse violence, even when exposed to grievance-consistent narratives. Legal cynicism—conceptualized as a cultural frame in which the law is viewed as unresponsive, illegitimate, or unworthy of compliance—has been tied to diminished rule adherence and retaliatory norms at both individual and contextual levels (Sampson & Bartusch, 1998; Kirk & Papachristos, 2011; Jackson et al., 2012; Tyler, 2006). Its strong association with VEI here suggests a normative pathway: when the law is regarded as lacking moral authority, violent transgression becomes easier to justify.

Notably, the sizeable correlation between low self-control and legal cynicism ($r \approx .60$) did not render either redundant in regression. This is consistent with the view that self-regulatory capacity and normative alignment capture complementary facets of risk. The former reflects the ability to inhibit action and regulate affect; the latter indexes the perceived bindingness of legal norms. Process models of moral disengagement (Bandura, 1999) and significance-seeking in political violence (Kruglanski et al., 2014) can accommodate such a division of labor: conspiracy beliefs articulate grievance-consistent meaning; legal cynicism weakens the moral constraint of law; poor self-control reduces the cognitive "cost" of acting on violent scripts.

The lack of convincing moderation warrants brief comment. Interactions in field data are difficult to estimate reliably; detecting small conditional effects typically requires very large samples and highly reliable measures (Aiken & West, 1991; Hayes, 2018). Here, scale reliabilities were acceptable but modest (α ≈ .70–.76), and VEI distributions are often skewed in community samples. Both features reduce sensitivity to interactions. It is also possible that in the present sociopolitical context—where experiences with institutions and rule-of-law histories may color legal orientations—legal cynicism exerts a pervasive main effect, leaving little residual variance for conditional patterns to explain. This interpretation is consistent with research linking everyday experiences of procedural justice and institutional legitimacy to rule compliance (Tyler, 2006; Jackson et al., 2012).

Several features of measurement and modeling help interpret the estimates. We used an 80% item rule to form composites, thereby limiting attenuation due to missingness within scales. The self-control composite was intentionally coded so that higher values indicate lower control; this coding places the substantive claim in the sign of the coefficient (a positive β means "worse control → higher VEI"). For legal cynicism, we relied on law-related morality items; while internally consistent, such proxies may emphasize moral evaluation more than procedural legitimacy, potentially increasing proximity to VEI by targeting the bindingness of legal

norms. Analytically, the use of HC3 robust standard errors accommodates heteroskedasticity and non-normal residuals typical of attitudinal outcomes; removing one high-leverage case and re-centering improved numerical stability without altering the qualitative pattern. Multicollinearity diagnostics were unremarkable, consistent with the fact that intercorrelations fell well below redundancy thresholds.

Alternative explanations merit consideration. One possibility is suppression: if conspiracy beliefs correlate positively with both self-control (in the "low" coding) and legal cynicism, partialing them out could conceivably reveal a negative residual CB–VEI relation. We did not observe evidence for such a reversal; rather, the conspiracy coefficient attenuated toward zero, indicating shared—not masked opposite—variance with proximal dispositions. Another possibility is common-method or acquiescent response bias: all variables were measured via self-report on similar Likert formats. However, the differential magnitudes across predictors (e.g., $\beta \approx .54$ for legal cynicism vs. ~0 for self-efficacy) argue against a purely artifactual explanation. Finally, range restrictions and cultural specificity may shape the pattern. The sample showed low mean VEI with adequate variance—a typical feature of community surveys—yet the strength of legal cynicism's association suggests that contextualized legal attitudes play an outsized role in this setting.

Another lens on the Romania–Germany differences is the cultural and institutional anchoring of conspiracist cognition and extremist attitudes. Prior work shows that political extremity is reliably associated with conspiracy beliefs, suggesting that meaning-making styles that search for sweeping, agentic explanations of societal events are more prevalent under certain political–historical conditions (van Prooijen & Krouwel, 2015).

Complementary cross-cultural work indicates that cultural values—such as collectivism and masculinity—can activate cognitive dispositions that heighten susceptibility to conspiracy narratives, with the operative cues varying by context (Adam-Troian et al., 2020). Relatedly, research argues that social context shapes receptivity to conspiracist accounts and the justification of violence among marginal extremist groups (van Prooijen & Douglas, 2018). Taken together, these strands imply that the strength—and not only the direction—of associations between beliefs and violent intentions is context-dependent, tracking institutional histories and prevailing cultural frames.

Applied to our comparison, institutional and historical differences between Germany and Romania plausibly contribute to the pattern we observe. Germany's postwar trajectory—marked by sustained confrontation with extremism and institution-building around democratic legitimacy—likely fosters a stronger everyday presumption of legal authority, whereas Romania's post-communist transition may be associated, on average, with a more fragile sense of legal legitimacy and more heterogeneous experiences with authority. In that light, the larger main effects of legal cynicism and (low) self-control in the Romanian sample are interpretable: these dispositions appear closer to the decision boundary for endorsing violent means, whereas conspiracy mentality adds only a modest increment once those dispositions are considered. Importantly, this reading concerns magnitude, not direction—the qualitative pattern (small positive CB→VEI; stronger links for law-related norms and self-regulation) is shared across settings.

Limitations are inherent. Non-probability recruitment across online and offline channels constrains external validity; cross-sectional design precludes causal inference; and our legal cynicism operationalization, though reliable, may not capture the full breadth of legitimacy judgments (e.g., trust in police, fairness, voice). Still, taken together, the estimates present a coherent narrative. Conspiracy mentality matters modestly for extremist willingness at the bivariate level; self-regulatory deficits and eroded legal normativity are more proximal to the stated readiness to offend. This configuration is theoretically intelligible and empirically robust across specifications, and it provides an interpretable platform for subsequent work to probe temporal ordering, mechanisms, and context dependence without presupposing complex conditional forms..

Conclusion

This replication adds three contributions that extend—not merely restate—the main findings.

First, it clarifies where to look for leverage: the structure of associations indicates that extremist intentions are better understood through capacity (self-regulation) and normative (legal orientation) routes, with conspiracist meaning frameworks operating in parallel. This shifts emphasis from content-specific counter-messaging toward broader self-regulation and legitimacy levers.

Second, the results favor an additive architecture of risk over conditional "it-depends" stories. That empirical shape is useful for theory building: models of radicalization should weight parallel pathways and reserve interactions for contexts where institutions or subcultures plausibly gatekeep effects.

Third, the study demonstrates a transparent, reproducible pipeline—80% item rule, mean-centering with HC3 robust estimation, simple-slopes probing—that can travel across settings. This is a methodological contribution for comparative work, especially in community samples where non-normal outcomes and modest reliabilities are typical rather than exceptional.

Looking forward, the most promising advances will come from design rather than further cross-sectional modeling: (a) longitudinal or experimental tests that manipulate perceived legitimacy or self-regulation skills; (b) cross-national replications calibrated to institutional context; and (c) multimethod outcomes that move beyond self-report. For policy and practice, sustainable reductions in extremist willingness will likely require institution-facing reforms that cultivate everyday legitimacy alongside individual-facing programs that strengthen self-regulatory capacity. Both are scalable, measurable, and

compatible with pluralistic democratic norms, making them realistic priorities for prevention portfolios.

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PSYCHOLOGY AND EDUCATIONAL SCIENCE
UNIVERSITY OF BUCHAREST

Neuroticism and Loneliness: The Role of Social Support in the Relationship Between Emotional Instability and Perceived Loneliness

Mara-Ioana Mardare

Andrei-Șerban Zanfirescu

University of Bucharest

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University of Bucharest, Department of Psychology, 90 Panduri Av, Bucharest, RO.
Tel.: +40 (0) 31-425.34.45
E-mail address: maraioana17@gmail.com

ABSTRACT

The aim of this study is to investigate the level of association between emotional instability and loneliness, and to test the moderating role of social support and social media use on the relationship between neuroticism and loneliness. The sample consisted of 152 individuals (n = 110, 72.4% women and n = 42, 27.6% men, SD =11.87). Demographic data were collected, along with data regarding levels of neuroticism, loneliness, perceived social support and social media use. Only one hypothesis, the one concerning the relationship between neuroticism and loneliness was supported, while the rest of the hypotheses were rejected. Results suggest that although neurotic individuals benefit from social support, it does not have a perceived effect on the loneliness they experience. Moreover, despite the fact that neurotics often engagge in social comparison when using social media, this does not influence the level of loneliness they feel. Limitations and future research directions are outlined later on in the study.

Keywords: emotional instability, loneliness, social support, social media use, Buffer Theory, neuroticism

1. INTRODUCTION

Emotional Instability

In the age of speed and continuous digitalization, loneliness has become a significant concern in the field of public health. Despite the rapid growth of virtual communication channels in recent years, many people report feeling more isolated than ever. Many people take refuge in the virtual reality of technology, seeking risk-free relationships that "starve" loneliness (Turkle, 2011). Through this paradox, the difference can be outlined between being present in the social scene and experiencing meaningful and fulfilling relationships, highlighting the urgent need to understand loneliness in modern society.

Regarding the link between loneliness and emotional instability, neuroticism is associated with increased reactivity to social stressors (Zautra et al., 2005). Moreover, individuals with a high level of neuroticism are more sensitive to social cues of rejection (Denissen & Penke, 2008). Neuroticism has also been linked to dysfunctional interpersonal behaviors, which can lead to dissatisfaction in relationships (Vater & Schröder-Abé, 2015). These personality vulnerabilities can result in feelings of loneliness (Buecker et al., 2020).

Neuroticism is defined as the tendency to frequently experience intense negative emotions associated with a perceived lack of control, seen as an inadequate coping capacity in response to stressful situations (Barlow et al., 2014). Rotter (1966) highlights that in research regarding locus of control, individuals who report an external locus of control score higher levels of neuroticism.

Neuroticism is strongly associated with a wide range of mental disorders, including comorbidities such as anxiety disorders, affective disorders, substance abuse, somatic manifestations, and eating disorders (Bagby et al., 2017; Widiger, 2009). Neuroticism represents a vulnerability factor for the development of these conditions, as well as a tendency to exaggerate their significance and a reduced capacity to respond effectively to treatment. Furthermore, neuroticism is associated with a low quality of life, including feelings of hostility, excessive worry, professional failure, and marital dissatisfaction (Ozer & Benet-Martínez, 2006).

Loneliness

Loneliness, described as a subjective emotional experience, occurs when individuals feel that their social relationships are insufficiently satisfying either quantitatively or qualitatively (Perlman & Peplau, 1981).

Unlike physical isolation, loneliness stems from the perception of being disconnected or lacking support, regardless of actual social circumstances. This phenomenon is universal, transcending cultural boundaries, although its causes and consequences are deeply personal and closely tied to context. Research shows that a significant portion of the population experiences loneliness. Approximately 40% of adults in the United States report feeling lonely, and this percentage has increased in recent years due to factors such as social isolation, the rise in digital communication, and societal changes (Cacioppo et al., 2010).

Demographic factors such as age and gender can influence the experience of loneliness. For example, elderly individuals are often considered more vulnerable due to the loss of life partners, friends, or reduced mobility. However, young people report loneliness just as frequently, especially in the context of technology-mediated interactions (Nowland et al., 2018).

There is a vast body of research exploring the effects of loneliness as well as the role of social support. In the study conducted by Liu et al. (2016), "Social support mediates loneliness and depression in elderly people", several possible causes of loneliness were highlighted, including qualitative and quantitative deficiencies in a person's social connections. Loneliness was described as an internal and deeply subjective experience, thus differing from social isolation. One aspect of the study that differs from the present research is the way loneliness was conceptualized. While Liu et al. (2016) emphasized the existence of two types of loneliness — social and emotional — the present study focuses on global loneliness, conceptualized as a whole.

Emotional loneliness is caused by the absence of close attachment bonds with another person, often experienced by individuals who have lost loved ones or gone through separation (Liu et al., 2016). Social loneliness is caused by the lack of a social network in which interests and common activities are shared (Liu et al., 2016). Researchers have also classified social support into four distinct subtypes: emotional, instrumental, evaluative, and informational (Sarason et al., 1990). The present research will explore social support both in its physical form (friend groups, family) and through social networks.

Consequences of Loneliness

Loneliness is increasingly recognized as a critical factor in health outcomes, with an impact comparable to smoking or obesity (Holt-Lunstad et al., 2010). According to Cacioppo and colleagues (2015), chronic loneliness can affect physical health by increasing stress levels, weakening the immune system, and heightening the risk of cardiovascular disease. This is due to the prolonged activation of the biological "fight or flight" response in the absence of adequate social support.

Furthermore, loneliness is closely linked to depression, anxiety, and other mental health disorders (Holt-Lunstad et al., 2010).

Social relationships play a crucial role in human well-being; research consistently shows the protective effects of social support and integration on morbidity and mortality rates. However, loneliness and social isolation are often overlooked despite their serious public health risks, with mortality rates comparable to well-known risk factors such as smoking, or their

alarming influence on decreased physical activity and obesity (Gerst-Emerson & Jayawardhana, 2015).

Social Support

Social support refers to the emotional resources that a person receives from others. This type of support may include help provided by friends, family, colleagues, or communities, being an important factor in managing stress and promoting general well-being (Cohen & Wills, 1985). Social relationships exist along a broad spectrum, from the intimacy between lovers to impersonal commercial transactions. As connections vary greatly in intensity and quality, difficulties may arise in establishing a convention or a universal understanding of the concept of social support. The concept has been influenced by various schools of thought, such as Durkheim's (1951) development of the idea of anomie, Cooley's (1909) concept of the primary group, and Bowlby's ideas on attachment (1971). It can be analyzed from the perspective of its social function for individuals, namely in terms of satisfying their needs. It also plays an important role in maintaining relationships at the societal level (Alloway & Bebbington, 1987). Social support is usually measured either in terms of the structure of a social network or as the support functions that network members provide (Willis, 1998). Structural social support, also conceptualized as social integration, encompasses a large number of social ties in which the individual is involved and the nature of all the connections they have. Social integration is globally assessed by the number of relationships and social roles a person has, the frequency of contact with network members, and the density and depth of relationships within the social group (Friedman, 2014)

Literature Review

Considerable effort has been devoted to researching the relationship between social support and health-promoting behaviors. Preliminary research has explored the possibility that social support positively affects people's health habits, which in turn may impact the individual's overall health. For example, links have been found between family life and a multitude of healthy habits, such as a lower likelihood of substance abuse or smoking and a higher likelihood of having a balanced diet and quality sleep (Umberson, 1987). Moreover, social support is associated with a variety of health benefits and represents a protective factor for individuals at health risk or with chronic illnesses. These include reduced complications during pregnancy (Collins et al., 1993), lower rates of myocardial infarction in diagnosed patients, and lower mortality rates for such individuals (Kulik & Mahler, 1993). In the literature, there are two main hypotheses centered on the beneficial role of social support. The first hypothesis, also called the direct effects hypothesis, claims that social support benefits physical and mental well-being equally during both stressful and non-stressful periods of a person's life. The second hypothesis, the buffering hypothesis, argues that the mental health benefits of social support are much more apparent during periods of acute stress, while in periods of mild stress its effects are not as significant (Friedman, 2014). Social support acts as a stored reserve, a resource that dampens the effects of stress and enables the individual to more effectively manage adversity (Cohen & Wills, 1985)

The Buffer Theory

The buffer theory postulates that social support moderates the impact of psychosocial adversity and the likelihood of triggering episodes of illness. In the research conducted by Alloway and Bebbington (1987), the impact of social support was examined in the context of psychiatric disorders, with the study focused on minor conditions such as depression or mild anxiety. The research explores social support at two levels of functioning: the preventive level, where social support can reduce the risk of developing mental disorders before the illness sets in, and the containment level, where it can prevent the worsening of symptoms after the illness appears. The study explores two levels at which social support can act. The term has been used to describe at least three types of relationships. The additive approach considers that low social support adds to the effect of adversity, since the difference in case rates under conditions of high and low adversity is greater where social support is absent. On the other hand, the multiplicative approach concludes that social support and adversity act independently on the rate of disorders: low social support doubles the proportion of cases regardless of adversity level, while adversity triples it regardless of social support level. In another example, the buffering effect is evident in both the additive and multiplicative approaches. Low social support adds to the effect of adversity in the emergence of disorders and there is also a synergy: the proportion of cases in the group with low social support and high adversity is greater than the product of proportions when only one of the risk factors is present. This points to a mutual aggravation of the two problems, with their combined effects being even greater than if they acted alone (Alloway & Bebbington, 1987). The research reveals modest correlations, with the main methodological difficulties being the diversity of definitions and measurements of the variable "social support" and the excessive number of conceptualizations of this construct in the specialized literature. Among the main limitations identified are: the evaluation of social support and possible biases in it, the weak link between social support and disorders, and the need for rigorous and improved research. The study suggests that social support should be assessed using reliable instruments, although this still relies on self-reports, which can lead to biased results.

Social Media Use

Social media networks are omnipresent in modern society and have changed the way people communicate with those around them. In the past two decades, social media networks have expanded exponentially, now including a variety of

websites and applications used by people of all ages around the world. Social media networks have been defined as web-based communication platforms with three distinct features, in which the platform 1) allows users to create unique profiles and content to share with other users, 2) creates a visible network of connections between users that can be explored by others, and 3) provides users with a space to broadcast content, consume information, and interact with others in a continuous flow of information (O'Day & Heimberg, 2021)

The use of social media has continued to grow significantly in recent years. Thus, in October 2024, the number of internet and social media users worldwide reached approximately 5.22 billion, representing 62.2% of the global population. These figures highlight the rapid expansion of digital platforms and their widespread adoption (Statista, 2024). Regarding Facebook, in November 2024, the platform reported a reach of 3.04 billion users in the Americas, thereby consolidating its position as the leading platform in this region. These data reflect Facebook's significant impact on users worldwide. Other social media platforms, such as Instagram and Snapchat, have become increasingly popular, especially among younger generations. 78% of young adults (aged 18 to 24) report using Snapchat, and 71% use Instagram, with most of them using these platforms daily or multiple times per day. Young adults are the generation that uses social media most frequently; 88% of individuals aged 18 to 29 indicate that they use social media in some form. Younger generations use multiple social media platforms several times a day, spending a large portion of their time online. Consequently, it is important to explore the role that social media use plays in loneliness.

2. METHOD

Participants and procedure

The sample includes individuals of various ages and educational backgrounds, ranging from high school students and university students to employed persons, all from Romania. Participants were invited to complete a Google Form distributed via social media platforms such as Instagram and WhatsApp, which included a consent form at the beginning. As this was a convenience sample, the only inclusion criterion was that participants be over 18 years old. The sample consisted of a total of 152 individuals (n = 110, 72.4% women and n = 42, 27.6% men) aged between 18 and 56 years (M = 26.47, SD = 11.87), of whom 2 individuals did not provide consent to continue.

Instruments

Emotional stability was measured using the Scale Factor IV [Emotional Stability] (International Personality Item Pool, n.d.). This inventory is part of the Personality domain [IPIP] and the Big-Five Factor Markers subdomain, consisting of 20 items that assess the level of emotional stability on a 5-point Likert scale (1 = "Strongly disagree" to 5 = "Strongly agree"). The version adapted for the Romanian population was used (Iliescu, Popa, & Dimache, 2015). Some example items include: "I rarely feel blue or melancholy.", "I get overwhelmed by emotions.", "I frequently experience mood swings." Previous studies have demonstrated good psychometric properties for the Factor IV [Emotional Stability] scale (e.g., Goldberg et al., 2006), which were also supported by the reliability analysis conducted in this study, using a Cronbach's alpha of .95.

Loneliness was measured using the UCLA Loneliness Scale – Version 3 (Russell, 1996), which consists of 20 items measured on a 4-point Likert scale (1 = "Always" to 4 = "Never"). Some example items include: "How often do you feel that you lack companionship?", "How often do you feel isolated from others?" Studies by Durak and Senol-Durak (2010) and Zarei et al. (2015) have highlighted the good psychometric properties of this scale, which were also confirmed by the reliability analysis conducted in this study, with a Cronbach's alpha of .93.

Social support was measured using the Perceived Social Support Scale (Russell & Cutrona, 1987). This self-report scale consists of 24 items that assess six dimensions of perceived social support (attachment, social integration, reassurance of worth, reliable alliance, guidance, and opportunity for nurturance) on a 4-point Likert scale (1 = "strongly disagree" to 4 = "strongly agree"). Each dimension includes four statements. Some example statements include: "I do not have close relationships with other people.", "I feel a strong emotional bond with at least one person in my life." (attachment); "There are no people who share my interests and concerns.", "There are people who admire me for my talents and abilities." (social integration); "I do not believe others respect what I do.", "There is no one who likes the things I do." (reassurance of worth); "I know there are people I can count on if I need help.", "If something went wrong in my life, there would be no one to help me." (reliable alliance); "There is no one I can turn to in times of stress.", "I have someone to talk to when making important decisions." (guidance); "There are people who rely on me for help.", "No one needs me." (opportunity for nurturance). Numerous previous studies have shown that the Perceived Social Support Scale has very good psychometric properties (e.g., Ross, Altmaier, & Russell, 1989; Kruger, 1997; Kruger, Struzziero, Watts, & Vacca, 1995; Russell, Altmaier, & Van Velzen, 1987; Winemiller, Mitchell, Sutliff, & Cline, 1993), a fact also supported by the reliability analysis conducted in this study, with a Cronbach's alpha of .94.

Social media use was measured using the Social Media Use Scale (SMUS; Tuck & Thompson, 2023). The Social Media Use Scale is a self-report questionnaire consisting of 17 items regarding the frequency of engagement in certain social media activities during the past 7 days, capturing four dimensions (image-based activity, comparison-based activity, belief-based activity, and content consumption style). It uses a 9-point Likert scale (1 = Never, 2 = 1–2 times per week, 3 = 3–4 times per

week, 4 = 5–6 times per week, 5 = Once per day, 6 = 2–5 times per day, 7 = 6–9 times per day, 8 = 10–13 times per day, 9 = Once an hour or more). The dimensions contain a varied number of items. The image-based activity dimension contains five items, including examples such as: "I edited and/or deleted my own content on social media.", "I played with photo filters/photo editing." The comparison-based dimension includes three items, such as: "I compared my life or experiences to others." The belief-based dimension is made up of four items, with examples like: "I searched for content I morally or ethically disagreed with.", "I commented in an unsupportive way or reacted negatively to someone else's post." The content consumption style dimension contains five items, including: "I browsed the pages of people I do not know (e.g., influencers or other famous people).", "I scrolled aimlessly through my feed.", "I watched videos such as memes, news content, or how-tos/recipes." The authors recommend randomizing the order of the items when administering the questionnaire. The Cronbach's alpha value calculated for the scale is .92.

Study design

The current study has a non-experimental, cross-sectional, and correlational design. Statistical analysis was conducted using the RStudio software (RStudio Team, 2023).

3. RESULTS

Descriptive statistics

Table 1

Correlations among the study variables

	1	2	3	4
1.Neuroticism				
2.Loneliness	. 50***			
3.Social Support	. 36***	. 76***		
4.Social Media Use	51***	-.42***	-. 35***	

Note: **p < .001

To test Hypothesis 1 (H1), a Pearson correlation analysis was conducted to determine whether there is a significant relationship between emotional instability (M = 62.19, SD = 0.84) and loneliness (M = 55.89, SD = 0.58). A statistically significant positive correlation was found between the two variables, r = .50, r^2 = .25, p < .001. The 95% confidence interval ranges between .36 and .60.

Using the ggplot2 and interactions packages, a multiple linear regression analysis was conducted (H2), implemented in R using the lm() function (linear model), to examine whether social support moderates the relationship between neuroticism (M = 62.19, SD = 0.84) and loneliness (M = 55.89, SD = 0.58). As shown in Table 2, the analysis indicated that social support does not moderate the relationship between neuroticism and loneliness. The plot in Figure 3 visually demonstrates that social support has no moderating effect on this relationship.

To test the third hypothesis (H3), a multiple regression analysis was performed using the lm() function in R to investigate whether social media use moderates the relationship between neuroticism (M = 62.19, SD = 0.84) and loneliness (M = 55.89, SD = 0.58). According to the results of this analysis (Table 2), no significant moderating effects of social media use were found in the relationship between neuroticism and loneliness. The plot in Figure 4 visually confirms that social media use does not moderate this relationship.

Social media use was measured across four dimensions: self-image-based, comparison-based, belief-based, and consumption-based use. To test the specific hypotheses, Pearson correlation analysis was conducted. A correlation of r = –.35, r^2 = .12, p < .001 was found between neuroticism and the self-image-based dimension. A correlation of r = –.46, r^2 = .21, p < .001 was found between neuroticism and the consumption-based dimension. A correlation of r = –.27, r^2 = .07, p < .001 was found between neuroticism and the belief-based dimension. A correlation of r = –.47, r^2 = .22, p < .001 was found between loneliness and the comparison-based dimension. A correlation of r = –.31, r^2 = .10, p < .001 was found between loneliness and the self-image-based dimension. A correlation of r = –.31, r^2 = .10, p < .001 was found between loneliness and the consumption-based dimension. A correlation of r = –.30, r^2 = .09, p < .001 was found between loneliness and the belief-based dimension. A statistically significant negative correlation was also found between neuroticism (M = 62.19, SD = .84) and the comparison-based dimension of social media use, r = –.56, r^2 = .31, p < .001. Since all resulting correlations are negative, none of the specific hypotheses are supported.

Table 2

Correlation Between Neuroticism and Social Media Use Dimensions

	1	2	3	4	5
1.Neuroticism					
2.SMUS_comparison	-. 56***				
3.SMUS_image	-. 35***	. 66***			
4.SMUS_consumption	-. 46***	. 71***	. 55***		
5.SMUS_belief	-. 27***	. 53***	. 54***	. 41***	

Note: *** p < .001, SMUS = Social Media Use Scale

Table 3

Correlation Between Loneliness and Social Media Use Dimensions

	1	2	3	4	5
1.Loneliness					
2.SMUS_comparison	-. 47***				
3.SMUS_image	-. 31***	. 66***			
4.SMUS_consumption	-. 31***	. 71***	. 55***		
5.SMUS_belief	-. 30***	. 53***	. 54***	. 41***	

Note: *** p < .001, SMUS = Social Media Use Scale

4. DISCUSSIONS

The aim of this study was to analyze the level of social support and the ways individuals with high levels of neuroticism and perceived loneliness use social media, as well as to examine whether perceived social support and specific patterns of social media use—across four dimensions—moderate the relationship between emotional instability and loneliness.

The results supported only one of the four hypotheses (H1). Specifically, the hypothesis stating that there is a significant relationship between emotional instability and loneliness was confirmed. However, social support did not have a statistically significant moderating effect on the relationship between neuroticism and loneliness, nor did social media use moderate this relationship. The four social media use dimensions—self-image-based, comparison-based, belief-based, and consumption-based—showed weak to moderate negative correlations with both loneliness and neuroticism, thereby refuting the specific hypotheses. These findings are consistent with previous research in the field. Emotional instability has been positively associated with loneliness (Hensley et al., 2012; Teppers et al., 2013; Vanhalst et al., 2012). Indirect evidence suggests that neuroticism is linked to heightened reactivity to social stressors (Zautra et al., 2005). Some individuals may chronically experience high or low levels of loneliness, while others may undergo more frequent fluctuations.

Such individual differences in internal variability may stem from different reactivity to the social environment (van Roekel et al., 2018). For instance, if both a more neurotic and a less neurotic person go through similar situations, but only the more neurotic person feels lonely when truly alone, they will experience greater situational fluctuations in loneliness than the less neurotic individual. Thus, different reactivity to social stress may help explain why personality traits can be associated both with average levels and with situation-based variability in loneliness (Shrestha et al., 2025).

Contrary to previous literature, no significant moderating effect of social support (H2) or social media use (H3) on the relationship between neuroticism and loneliness was found. One explanation might be that individuals with high levels of neuroticism may interpret social interactions negatively, even when those interactions are well-intentioned, thereby reducing the beneficial impact of perceived support. Moreover, the quality of social support—in terms of emotional closeness, trust, and alignment between expectations and reality—may be more important than its quantity, and the measures used in this study may not have adequately captured these qualitative aspects.

Regarding H3, which hypothesized that different ways of using social media would moderate the relationship between neuroticism and loneliness, although the analyzed dimensions of social media use (self-image-based, comparison-based, belief-based, and consumption-based) showed weak or moderate negative correlations with both neuroticism and loneliness, they did not have a significant moderating effect. This suggests that while the way individuals use social media correlates with personality traits and emotional states, these platforms do not seem to buffer or intensify the direct relationship between neuroticism and loneliness.

Limitations

The research design was cross-sectional, therefore no conclusions regarding causality can be drawn, and it also prevents verification of response consistency over time. Additionally, the small sample size limited the accuracy of

statistical analyses. The study used a convenience sample, and the age differences among participants were large (18 years – 56 years), meaning the results cannot be generalized to the entire population. 72.4% of respondents were female and only 27.6% were male, which also limits the generalizability of the results.

Conclusions

This study yielded results inconsistent with the existing literature; individuals with a high level of neuroticism did not experience a reduction in feelings of loneliness through social support or social media use. Therefore, future research is needed to better explain the conditions under which social support, social media usage behaviors, emotional instability, and feelings of loneliness manifest among people.

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STUDIA DOCTORALIA
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The Role of Work Meaningfulness in the Relationship between Workplace Loneliness and Counterproductive Behaviors

Carolina Scurtu

University of Bucharest

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University of Bucharest, Department of Psychology,
90 Panduri Av, Bucharest, RO.
Tel.: +40 (0) 31-425.34.45
E-mail address: carolinascurtu04@gmail.com

ABSTRACT

This study explores the relationship between workplace loneliness and counterproductive work behaviors, with a focus on the role of work meaningfulness as a moderating factor. In an empirical investigation conducted with a sample of 141 employees from various industries, we examined how perceptions of loneliness influence negative workplace behaviors and how work meaningfulness may diminish this effect. The results indicate that work meaningfulness acts indeed as a moderator in the relationship between loneliness and CWB, and despite the assumption that it would attenuate this relationship, work meaningfulness was found to work as an intensifier. In other words, high levels of perceived meaningfulness may cause a stronger effect of work loneliness on counterproductive work behavior. This study expands and contributes to existing literature regarding the outcomes of meaningful work. Moreover, the research implies that strategies to reduce loneliness and improve work meaning should be carefully designed, as they may have unintended consequences if not balanced properly.

Keywords: loneliness, counterproductive work behavior, meaningfulness

1. INTRODUCTION

Currently, employees face a wide variety of stressors, one of which is quite significant but often neglected: workplace loneliness. Loneliness in the organizational environment can be a phenomenon with significant effects on employee well-being, having the potential to influence counterproductive behaviors that affect both individual performance and organizational atmosphere (Szostek, 2019).

Although this topic appears to be quite important for organizational life, it has been very little studied. Previous studies have shown that workplace loneliness has a significant relationship with social media addiction (Tang et al., 2024) and with counterproductive behaviors in general (Szostek, 2019). However, one aspect that has not been researched is the influence that work meaningfulness has on this relationship. Work meaningfulness is an essential factor in how employees respond to workplace challenges (Steger et al., 2012) and could significantly influence the negative impact of loneliness on deviant behaviors.

The present study aims to investigate the effect of workplace loneliness on counterproductive behaviors, considering work meaningfulness as a moderating factor. It is anticipated that work meaningfulness will reduce the negative impact of loneliness on counterproductive behaviors, thus flattening the effect and promoting a healthy and productive work environment.

This study intends to deepen the understanding of how loneliness and work meaningfulness influence unwanted behaviors at work, as well as to identify ways through which organizations can implement effective strategies to prevent these behaviors.

Workplace Loneliness

Most people have experienced the feeling of loneliness at some point in their lives and are capable of identifying it. The word "loneliness" is often used by people to portray a state of isolation and marginalization of an individual from the rest of the population or to outline the absence of interpersonal relationships with their peers. Researchers sustain that loneliness is people's unsatisfied need for intimacy and the result of deficiencies in their social relationships from a quantitative or qualitative perspective (Peplau & Perlman, 1982).

The Need to Belong Model claim that people have an essential need for meaningful social relationships, and the absence of these connections generates loneliness and negative effects on general health and well-being (Baumeister & Leary, 1995). Loneliness is profoundly associated with feelings of isolation and represents rather a lack of intimate connections than a general lack of social contact. The Evolutionary Theory of Loneliness (ETL) affirms that loneliness has an adaptive role - when we feel lonely, the brain perceives this state as a signal of insufficient social connections, making us more vigilant toward threats and more suspicious toward others (Cacioppo & Cacioppo, 2018). The Cognitive Discrepancy Model developed by Peplau and Perlman (1982) maintains that loneliness occurs when there is a significant difference between the desired level of social connection and that actually experienced, with a person's perception and expectations playing a central role, not the quantity of relationships (Peplau & Perlman, 1982).

Regardless of the chosen definition, loneliness is a complex system of powerful emotions that arises as a result of unfulfilled intimate and social needs on a psychological level. However, loneliness includes a profound need for connection and emotional closeness and is not limited only to physical isolation (Wright, 2005).

Although specialists have dedicated considerable attention to the concept of loneliness, the study of loneliness's impact on the organizational context remains quite limited. One of the most precise conceptualizations of workplace loneliness was developed by Ozcelik and Barsade (2018), who declare that workplace loneliness is an emotional state defined by the sensation of social isolation or emotional disconnection from colleagues and the organization. Workplace loneliness manifests when employees perceive that their needs for belonging and relationships are not satisfied (Ozcelik & Barsade, 2018). Loneliness is a subjective experience; an employee can feel lonely even if they frequently interact with their colleagues. This happens because the interactions do not reach the minimum level of intimacy, which is subjective (Peplau & Perlman, 1982). This perception can generate feelings of relational inadequacy, leading to psychological pain (Ozcelik & Barsade, 2018; Wright & Silard, 2021).

Researchers vouch that workplace loneliness can be a predictor of many negative consequences in the organizational context. A recent study shows a negative relationship between workplace loneliness and employee well-being (Dhir et al., 2023). Zhang et al. (2024) discovered that workplace loneliness increases the probability that employees will engage in unethical pro-organizational behaviors (UPB) through increased feelings of frustration related to relatedness need thwarting (Zhang et al., 2024). Erdil and Ertosun (2011) studied the influence of organizational social climate on employee loneliness and well-being, based on Weiss's (1973) theory that defines loneliness through two dimensions: social and emotional. The researchers identified two types of social climate: relationship-based climate (cooperation, trust, mutual support) and emotion-based climate (emotional atmosphere - openness and empathy versus cold and distant environment). The results demonstrate that a healthy organizational climate, which combines relational with emotional support, can reduce workplace loneliness and improve employee well-being (Erdil & Ertosun, 2011).

Studies have also discovered that emotional loneliness has a significant and positive relationship with turnover intention in

the organization (Aykan, 2014), and negatively influences people's organizational commitment (Ayazlar & Güzel, 2014). Loneliness decreases performance by reducing positive interactions and employee loyalty toward the organization (Ozcelik & Barsade, 2018). A 2023 meta-analysis identified that workplace loneliness moderately correlates with: low professional performance, reduced job satisfaction, poor quality relationships with managers, and high burnout (Bryan et al., 2023).

In 2022 a study using Self-Determination Theory (SDT) (Deci & Ryan, 2008) demonstrated that workplace loneliness negatively affects employees' emotional engagement, perception of colleague and supervisor support, and reduces organizational citizenship behaviors (OCB) (Wax et al., 2022). Additionally, Tang et al. (2024) discovered that socially isolated employees are more prone to social media addiction and experiencing FoMO (Fear of Missing Out). These findings highlight that loneliness influences employee functioning and well-being.

Work Meaningfulness

Work occupies an important part of people's lives, and many of them desire more than just a simple salary; they want their activity to have a purpose or personal meaning.

"Work meaningfulness" should not be confused with "work meaning" (Rosso et al., 2010), since "meaning" is the result of understanding something, or what it signifies. "Meaningfulness", on the other hand, refers to how important something is to an individual; it consists of how each individual perceives the value and purpose of activities performed at work. Additionally, it involves personal interpretation of the meaning attributed to the work performed and evaluation of how it contributes to fulfilling personal needs, achieving objectives, and satisfying individual aspirations. Work meaningfulness is subjective and can be influenced by each employee's values, beliefs, and motivations (Pratt & Ashforth, 2003).

Work meaningfulness is a eudaimonic, multidimensional psychological state; there are three subdimensions of this purpose-oriented psychological state, which include: (1) Positive Meaning in work (PM): meaningful work is often a subjective experience in which what a person does has personal importance and people judge their work as being important and significant, (2) Meaning making through work (MM): work is an important source of meaning in the total ensemble of human life, contributing to building a broader purpose and personal development, and meaningful work helps people deepen their understanding of themselves and the world around them, (3) Greater good motivations (GG): the desire to have a positive impact on the greater good (Steger et al., 2012).

Lepisto and Pratt (2017) define work meaningfulness starting from two central perspectives: the Realization Perspective and the Justification Perspective. The realization perspective denotes meaningfulness that is centered on fulfilling the individual's needs, motivations, and desires, related to self-actualization and self-expression; work is considered meaningful when it reflects the person's identity and allows them to realize their potential. The justification perspective focuses on the individual's need to justify the value of their work, answering the question "Why is my work valuable?" Work becomes meaningful when the individual can construct a social or personal justification of its value (Lepisto & Pratt, 2017). Thus, work meaningfulness is seen either as a realization of the self or as a justification of value. This can be caused both by situational particularities (e.g., authentic leadership) of the job as well as internal aspects (e.g., self-efficacy) of the individual (Chaudhary, 2022). For example, involvement in proactive behaviors at work influences the level of meaningfulness that the employee feels independent of the benefits offered by helping others (Fay et al., 2023).

A large part of the literature studying work meaningfulness investigates the relationship between it and job crafting ability. Some studies show that meaningfulness serves as a mediator between job crafting and various positive outcomes within the organization (e.g., work engagement, performance) (Tims et al., 2016; Wrzesniewski et al., 2013).

A job that has meaning for the worker is associated with psychological benefits. Employees who perceive their work as being meaningful or as having a broader social purpose report better psychological adjustment and also display qualities that organizations consider desirable (Dik et al., 2013). People who feel that their work has meaning report a high level of well-being at work (Hager, 2018), and better mental health, contributing to reducing symptoms of anxiety and depression (Steger et al., 2012). They also manifest greater satisfaction regarding the workplace (Choi et al., 2021).

Counterproductive Work Behaviors

Counterproductive work behaviors (CWB) are considered those intentional behaviors that harm the organization or its members (Spector et al., 2006). A detrimental aspect of CWB is the purpose of the action - the act is always intentional and not accidental; therefore, the employee acts consciously with the purpose of harming the organization or may cause collateral damage following an intentional action. These behaviors can manifest as: theft, performing tasks incorrectly, withdrawal, sabotage, aggression (Spector & Fox, 2005).

There are several perspectives on the explanatory mechanisms of counterproductive work behaviors. Robinson and Bennett (1995) developed a typology of deviant workplace behaviors, classifying these behaviors based on two essential dimensions: degree of severity (minor vs. serious deviance) and target of deviant behavior (individual vs. organizational). Based on these dimensions, deviant behaviors are classified into four distinct categories: (1) Production Deviance (Minor and Organizational) - leaving work early, taking excessive breaks, intentionally working at a slow pace, wasting company resources; (2) Property Deviance (Serious and Organizational) - sabotaging equipment, stealing company goods, abusing

expense accounts; (3) Political Deviance (Minor and Interpersonal) - favoritism toward colleagues, gossiping about colleagues, blaming others for one's own mistakes, unconstructive competition; (4) Personal Aggression (Serious and Interpersonal) - sexual harassment, verbal abuse, physical aggression, behaviors that endanger other colleagues (Robinson & Bennett, 1995). This typology provides a clear structure for understanding deviant workplace behaviors and helps organize them into a coherent framework.

Spector and Fox (2005) introduced an explanatory model in the literature: The Stressor-Emotion Model of Counterproductive Work Behavior, building on the Control Theory of the Job Stress Process (Spector, 1998) and the Frustration-Aggression Model (Fox & Spector, 1999). The new model explains these behaviors as results of the interaction between organizational stressors and employees' negative emotional reactions. It suggests that environmental stressors (e.g., interpersonal conflicts, role ambiguity, and excessive workload) lead to negative emotions (e.g., frustration, anger), which subsequently generate counterproductive behaviors. The model suggests that personality traits such as anger and anxiety are important predictors of CWB (Spector & Fox, 2005).

Gruys and Sackett (2003) provide a detailed perspective on the structure of counterproductive work behaviors (CWB). Factor analysis and multidimensional scaling revealed two main dimensions: (1) The Interpersonal-Organizational Dimension (separates behaviors oriented toward the organization from those directed against individuals) and (2) Task Relevance: distinguishes behaviors directly related to work tasks (e.g., poor work quality) from those that are more general in nature (e.g., alcohol consumption). Researchers state that employees who manifest one type of counterproductive behavior are more likely to display other similar behaviors, suggesting the existence of a general pattern whereby these behaviors frequently co-occur (Gruys & Sackett, 2003).

O'Boyle et al. (2012) investigated through meta-analysis the relationship between the Dark Triad and counterproductive behaviors from the perspective of Social Exchange Theory, detecting that people with these traits undermine workplace collaboration by exploiting resources and interpersonal relationships for selfish purposes, negatively affecting performance and organizational behaviors. People with explicit and/or implicit narcissism manifest higher levels of CWB (Fatfouta & Schwarzinger, 2024).

Types of counterproductive behaviors differ according to the stressors that cause them: conflicts with supervisors lead to CWB directed toward the organization, while conflicts with colleagues lead to interpersonal CWB, with negative emotions mediating this relationship (Bruk-Lee & Spector, 2006). Among Big Five traits, neuroticism is positively correlated with CWB due to emotional instability, while agreeableness and conscientiousness are negatively correlated (Miao et al., 2023). Personal values such as hedonism and need for power are positively correlated with CWB, motivating counterproductive behaviors to satisfy personal objectives (Muhammad Hafidz, 2012).

Affective changes outside work hours influence CWB; according to Conservation of Resources Theory (COR) (Hobfoll et al., 2018), increased negative affect outside work consumes emotional resources and reduces self-control capacity (Qu et al., 2021). Also, perceived organizational injustice triggers negative emotions that motivate revenge through counterproductive behaviors, amplified by lack of support or poor relationships with leaders (El Akremi et al., 2010). Szostek (2019) shows that low-quality interpersonal relationships are associated with increased stress and conflicts, leading to behaviors such as sabotage, theft, or colleague harassment, but very close relationships can also increase CWB through group negligence or sabotage out of solidarity with a colleague treated unfairly by the organization (Szostek, 2019).

Workplace loneliness represents a factor with significant negative implications, being associated with increased counterproductive behaviors (Szostek, 2019), affecting employee well-being and organizational performance (Bryan et al., 2023; Ozcelik & Barsade, 2018). Work meaningfulness can act as a protective factor, reducing the negative impact of loneliness by providing meaning to professional activities. Although the effect of work meaningfulness is researched in relation to well-being and satisfaction, there is no vast empirical support for its relationship with other organizational factors. This study creates a "bridge" between workplace loneliness and work meaningfulness, supporting that there is a significant relationship between workplace loneliness and counterproductive behaviors, and work meaningfulness can serve as a moderator in this relationship.

2. METHOD

Research Objectives

The objective of this research is to investigate the effect of workplace loneliness on counterproductive work behaviors (CWB). Additionally, the study explores the moderating effect that the meaning of work may have on this relationship.

Hypotheses

H1. *The meaning of work has a significant negative moderating effect on the relationship between loneliness and CWB.*

Participants and procedure

The eligibility criterion for inclusion and exclusion was the age of the participants; this study addresses only individuals over the age of 18. Furthermore, in order to participate in the study, individuals were required to be employed.

Participants were invited to complete the questionnaire via the Google Forms platform. They were selected using the snowball sampling method and contacted through social media platforms (e.g., Instagram, WhatsApp, or Messenger). Respondents were asked to sign an informed consent form regarding the processing and use of personal data. They were also informed that they could withdraw from the study at any time.

The questionnaire had several sections that participants were required to complete. The first part involved reading and providing informed consent, as well as entering demographic data. For demographic data collection, participants answered a series of questions. To indicate place of residence, they selected either "Rural" (coded as 1) or "Urban" (coded as 2). Regarding gender, participants chose "Male" (1) or "Female" (2). Educational level was reported according to the following classification: "Primary" (1), "Middle school" (2), "High school" (3), "Post-secondary" (4), "Bachelor's degree" (5), "Master's degree" (6), "Doctorate" (7), and "Postdoctoral" (8). Participants also indicated the average number of hours dedicated to work activities per day, selecting from the following intervals: "0–2 hours" (1), "2–4 hours" (2), "4–6 hours" (3), "6–8 hours" (4), "8–10 hours" (5), and "more than 10 hours" (6). Once all responses were completed, the data were collected and entered into a statistical database, using the coding described above to facilitate further analysis.

The second part of the questionnaire consisted of completing the Loneliness at Work Scale (LAWS) (Wright et al., 2006), followed by the Counterproductive Work Behavior Checklist (CWB-C) (Spector et al., 2006), and finally the Work and Meaning Inventory (WAMI) (Steger et al., 2012).

A total of 141 individuals participated in the study. Of the 141 participants, 52 (36.9%) were men and 89 (63.1%) were women. The mean value of gender is M = 1.63 (SD = .48), indicating a distribution closer to value 2 (Female). The age of the participants ranged from 18 to 55 years. The average age of participants is 26.01 years (SD = 7.69), with a median age of 23, suggesting a slightly skewed distribution due to a few older participants who influenced the mean. 48 (34%) of the participants came from rural areas, and 93 (66%) came from urban areas. The mean value for place of residence is 1.66 (SD = .47), indicating a distribution leaning toward value 2 (Urban), which shows that the majority of participants came from urban areas. Their education levels were as follows: high school graduates (44.7%), bachelor's degree (27.7%), master's degree (19.1%), and other (8.5%). The mean level of education is 4.18 (SD = 1.31), and the median is 4, suggesting that most participants have completed post-secondary education. The mean number of working hours is 3.87, with a median of 4, indicating that most participants fall within the 4–6 hours per day work interval.

Sample Size

Before collecting responses, an a priori power analysis was conducted to determine the required sample size. Based on $f^2 = 0.08$, $\alpha = .05$, and $1 - \beta = 0.80$, the analysis indicated 141 participants were needed. The effect size of 0.08 was set by the researcher due to lack of similar studies in existing literature, chosen to balance practicality while avoiding overestimation of variable relationships.

Instruments

Loneliness at work was measured with Loneliness at Work Scale (LAWS) to measure the level of workplace loneliness experienced by participants. The LAWS scale consists of 16 items. Responses are measured on a 5-point Likert scale (1 = Strongly disagree, 5 = Strongly agree), indicating the extent to which participants agree with statements such as: "I often feel alienated from my coworkers". Statistical analyses indicate the presence of two facets: (1) Emotional Deprivation (ED), (2) Social Companionship (SC). The psychometric properties of the LAWS subscales show a Cronbach's alpha index above .80, with α values ranging between .87 and .93 (Wright et al., 2006).

Counterproductive behavior was measured with The Counterproductive Work Behavior Checklist (CWB-C) to identify the frequency of counterproductive behaviors in the workplace. The CWB-C scale consists of 45 items. Responses are measured on a 5-point Likert scale (1 = Never; 5 = Daily), indicating how frequently counterproductive behaviors occur, with questions such as: "Have you arrived late to work without permission?". The scale includes two facets: (1) CWB directed toward the organization (CWB-O) and (2) CWB directed toward individuals (CWB-I). The subscales of the CWB-C show Cronbach's alpha values above .80, ranging between .84 and .85 (Spector et al., 2006).

Work meaning was measured with The Work and Meaning Inventory (WAMI) to assess the meaning that respondents attribute to their work. The WAMI scale consists of 10 items. Responses are measured on a 5-point Likert scale (1 = Strongly disagree, 5 = Strongly agree), indicating the extent to which participants identify with the provided statements, such as: "I have found a meaningful career". The scale measures three facets: (1) Positive Meaning (PM), (2) Meaning-Making through Work (MM), and (3) Greater Good Motivations (GG). The WAMI subscales have Cronbach's alpha values above .60, ranging from .65 to .78 (Steger et al., 2012).

Research Design

This study has a cross-sectional correlational design.

3. RESULTS

Descriptive Statistics

The data was analyzed using R Studio, with the dataset imported from Excel. First, the internal consistency of each questionnaire was verified: LAWS (.91), CWB-C (.95), and WAMI (.94); thus, all questionnaires showed very high internal consistency. The next step was to compute descriptive statistics.

Table 1

Descriptive statistics and Spearman correlation matrix

	M	SD	α	1	2	3	4	5	6	7	8	9	10
1. LAWS	35.1	13.3	.91	—									
2. ED	19.4	7.93	.89	.89***	—								
3. SC	15.7	7.14	.88	.88***	.60***	—							
4. CWB-C	64.7	19.3	.95	.32***	.36***	.02*	—						
5. CWB-O	34	9.74	.88	.35***	.38***	.24**	.91***	—					
6. CWB-P	30.7	10.94	.94	.18*	.22**	.08	.82***	.57***	—				
7. WAMI	37.4	10.76	.94	-.59***	-.50***	-.53***	-.34***	-.36***	-.18*	—			
8. PM	14.8	4.78	.92	-.57***	-.48***	-.53***	-.32***	-.35***	-.17*	.94***	—		
9. MM	11.3	3.54	.88	-.58***	-.48***	-.54***	-.32***	-.36***	-.15	.93***	.84***	—	
10. GG	11.3	3.22	.72	-.51***	-.47***	-.43***	-.27***	-.27***	-.16	.89***	.75***	.76***	—

Note. * p < .05, ** p < .01, *** p < .001.

In Table 1, descriptive analyses of the measured variables and the facets of each were conducted. Independent Variable: Loneliness (M = 35.1, SD = 13.3) and its facets: Emotional Deprivation (ED, M = 19.4, SD = 7.93) and Social Companionship (SC, M = 15.7, SD = 7.14). Dependent Variable: Counterproductive Work Behaviors (CWB, M = 64.7, SD = 19.30) and its facets: CWB directed at the Organization (CWB-O, M = 34.0, SD = 9.74) and CWB directed at Individuals (CWB-I, M = 30.7, SD = 10.94). Moderator: Meaning of Work (M = 37.4, SD = 10.76) with the facets of Positive Meaning (PM, M = 14.8, SD = 4.78), Meaning-Making through Work (MM, M = 11.3, SD = 3.54), and Greater Good Motivations (GG, M = 11.3, SD = 3.22). The distribution of the data for the CWB variable is skewed (Skewness = 3.67). Furthermore, the distribution does not meet the normality assumptions (Kurtosis = 21.41). Based on these indicators, it was decided that non-parametric statistical procedures would be used to test the hypothesis, as the data do not meet the condition of normality. Workplace loneliness, as measured by the LAWS scale, was significantly positively correlated with overall counterproductive work behavior (r =.32, p < .001), as well as with counterproductive behavior directed at the organization (r = .35, p < .001) and at people (r = .18, p < .05). This suggests that higher levels of loneliness at work are associated with more frequent engagement in harmful work behaviors. Conversely, loneliness was significantly negatively correlated with perceived meaningfulness of work (r = −.59, p < .001), including all three WAMI dimensions: Positive Meaning (r = −.57, p < .001), Meaning-Making through work (r = −.58, p < .001), and Greater Good motivations (r = −.51, p < .001). In line with expectations, work meaningfulness also exhibited significant negative correlations with counterproductive work behaviors. The overall WAMI score was inversely related to CWB-C (r = −.50, p < .001), CWB-O (r= −.53, p < .001), and CWB-P (r = −.36, p < .001), indicating that individuals who perceive their work as more meaningful are less likely to engage in such behaviors.

Hypotheses testing

To test the research hypothesis, a Robust Regression Model was used. The first step was to center the data (Loneliness and Meaning). Then, robust regression was applied to examine the relationship between the variables, which is presented in Table 2..

Table 2

Robust regression model

Effect	Estimate	SD	95% CI		t	p
			LL	UL		
Intercept	63.37	1.15	61.09	65.64	55.06	<.001
Loneliness centered	.14	.09	-.04	.33	1.54	.12
Work meaningfulness centered	-.33	.12	-.58	-.09	-2.74	<.01
Loneliness centered × Work Meaninfulness centered	.01	.01	.00	.02	2.14	.03*

*Note: * p < .05, ** p < .01, *** p < .001.*

The coefficient associated with Centered Loneliness = .14 (SD = .09), although the sign of the coefficient indicates a positive relationship between Centered Loneliness and CWB, this relationship is not statistically significant (t = 1.54, p > .05). The coefficient associated with Centered Meaning = −.33 (SD = .12), this coefficient is statistically significant (t = −2.75, p < .01), indicating a negative relationship between Centered Meaning and CWB. Thus, an increase in Centered Meaning is associated with a decrease in the CWB score. The interaction between Centered Loneliness and Centered Meaning = .01 (SD = .01), this effect is statistically significant (t = 2.14, p < .05), suggesting that the relationship between Centered Loneliness and CWB varies depending on the level of Centered Meaning. The positive coefficient indicates that an increase in Centered Meaning amplifies the positive effect of Centered Loneliness on CWB. Therefore, Centered Meaning has a negative moderating effect in the relationship between Centered Loneliness and Counterproductive Work Behaviors, and thus, we reject H1. The standard errors for the coefficients indicate the precision of the estimates. The root mean square error of the residuals (11.01) suggests the dispersion of the predictions from the observed values.

We applied the Mann-Whitney U Test (Wilcoxon rank-sum test) to compare counterproductive work behaviors between sex groups (female, male). Following the test, we found that there is a significant difference between the two groups (W = 2866, p = .01, p < .05), suggesting that sex has a significant effect on counterproductive behaviors.

The Kruskal-Wallis Test was applied to compare counterproductive work behaviors among several groups defined by Education. The test suggests that there are significant differences between the education groups regarding counterproductive behaviors ($\chi 2$ = 12.80, df = 6, p = .04, p < .05). In other words, the distribution of counterproductive work behaviors differs significantly depending on participants' level of education.

To examine the relationship between loneliness (centered) and counterproductive work behaviors, we used Spearman's Correlation. The results of the Spearman test (rho = .32, p < .001) indicate that there is a moderate and statistically significant positive correlation between centered loneliness and counterproductive work behaviors. This suggests that people who experience higher levels of loneliness tend to display counterproductive work behaviors more frequently.

Table 3

Generalized regression between centered loneliness, centered work meaning, and counterproductive behaviors

Predictor	β	SD	t	95% CI	95% CI	p
				LL	UL	
Intercept	64.67	1.58	40.85	61.55	67.79	< .001
Loneliness (centered)	.28	.15	1.79	-.03	.58	.07
Work Meaningfulness (centered)	-.16	.19	-.85	-.53	.21	.39

*Note: * p < .05, ** p < .01, *** p < .001.*

The Generalized Linear Model (GLM) investigated the relationship between centered loneliness, centered meaningfulness of work, and counterproductive work behaviors. In the case of centered loneliness, the coefficient was estimated

at .27, suggesting a positive relationship with counterproductive behaviors. However, this relationship is not significant ($p = .07$, $p > .05$). This result indicates a possible marginal link between the two variables, suggesting that loneliness might contribute to counterproductive behaviors, but not in a strong enough manner to be confirmed in this model. Centered meaning of work had a negative coefficient of −.16, suggesting a possible inverse relationship with counterproductive behaviors, but it was not statistically significant ($p = .39$, $p > .05$). The model's intercept, with a value of 64.67 ($p < .001$), reflects the average level of counterproductive work behaviors when both loneliness and meaning of work are at their centered mean level (zero). Thus, in the absence of variation in these factors, counterproductive work behaviors remain at a relatively high level. The results can be seen in Table 3.

The kernel regression model was applied to analyze the nonlinear relationships between the centered loneliness and centered work meaning variables with counterproductive work behaviors. The kernel model result does not provide an easily interpretable coefficient but can be used to identify complex relationships among the variables in the data. Two-dimensional (2D) and three-dimensional (3D) visualizations were used to illustrate the relationship between centered loneliness, centered work meaning, and counterproductive work behaviors.

5. DISCUSSIONS

The aim of this study was to understand the relationship between loneliness, work meaningfulness, and counterproductive work behaviors (CWB). The results highlight that the interaction between loneliness and work meaningfulness significantly influences the occurrence of CWB, with a higher level of work meaningfulness strengthening the effect of loneliness on counterproductive behaviors. This counterintuitive relationship can be explained by the Effort-Reward Imbalance Model (ERI) (Siegrist, 2016), which states that people need a balance between the effort invested at work and the rewards received. Work meaning is perceived as the effort given to the organization, while loneliness represents the reward received. Experiencing an imbalance between high effort (meaningfulness) and low reward (loneliness/weak social relationships) frustrates expectations of equivalence and can predict counterproductive behaviors. Babamiri et al. (2022) assert that ERI predicts CWB-I when employees feel their effort is not adequately rewarded. These results provide the first direct demonstration of the relationship between loneliness, work meaning, and counterproductive behaviors, suggesting that individuals who feel lonely at work are more likely to engage in CWB if they perceive high work meaning, as their effort is not reciprocated with the desired social relationships. However, this explanation is inductive reasoning and requires rigorous studies to clarify the mechanism through which work meaning stimulates CWB among lonely individuals in the organizational context.

The results show that loneliness has a positive effect on counterproductive behaviors, indicating that employees who feel isolated are more likely to exhibit attitudes and actions that negatively impact the organizational climate, according to Spearman's correlation. These findings are consistent with previous studies showing that loneliness at work contributes to the emergence of counterproductive behaviors (Hitlan & Noel, 2009). Yet, Robust Regression reveals that the relationship between loneliness and CWB is not statistically significant.

Future research should analyze in more detail the impact of loneliness on deviant behaviors to better understand this relationship.

An important aspect is the impact of work meaningfulness, which has a significant negative effect on counterproductive behaviors. In other words, employees who perceive their work as purposeful and personally valuable are less likely to adopt behaviors harmful to the organization or colleagues. This suggests that a sense of work meaning plays a protective role, contributing to engagement and professional responsibility. However, previous studies support an indirect relationship between work meaning and CWB (Long, 2017; Sirbu et al., 2023).

Additionally, the Mann-Whitney U test reveals that sex differences influence significantly counterproductive behaviors. These results are supported by earlier studies where sex plays a moderating role between factors and CWB; researchers found sex differences in the occurrence of CWB, especially that males tend to engage more in counterproductive behaviors (Lipińska-Grobelny, 2021; Spector & Zhou, 2013; Szostek et al., 2022). The Kruskal-Wallis test showed that education level has an important impact on counterproductive behaviors, suggesting that employees with higher education may better understand the consequences of such behaviors and develop more effective strategies for managing conflicts and professional pressure. Appelbaum et al. (2007) state that highly educated individuals are less likely to engage in deviant behaviors.

These findings have important implications for organizations and human resource management. To reduce counterproductive behaviors, employers should implement strategies that combat loneliness by encouraging social interactions (team-building, mentoring, informal meetings), adapt support as the work environment evolves (individual discussions focused on wellbeing and work-life balance), and develop a people-oriented organizational culture (Sullivan & Bendell, 2023). It is essential to facilitate resources to increase work meaning through three steps: using personal strengths, linking activities to meaningful outcomes, and contributing to a greater good (Dik et al., 2013). These steps provide satisfaction

by leveraging skills, connecting work to long-term goals, and fostering altruism.

Finally, individual factors such as sex and education should be integrated into management strategies to adapt organizational policies to employee diversity.

Theoretical and Practical Implications

This study contributes to the literature by offering new perspectives on the relationship between loneliness and work meaningfulness, emphasizing the importance of this relationship in amplifying negative behaviors in the workplace. Additionally, the study strengthens existing theories about psychological resources and their impact on organizational behaviors. This finding makes a significant contribution to psychological resource theories, supporting the idea that, under certain conditions, resources traditionally considered beneficial can paradoxically act as risk factors and exacerbate negative consequences in organizational contexts (Winkel et al., 2011).

In practical terms, the study offers new insights for developing organizational strategies aimed at combating counterproductive work behaviors. Organizations should pay special attention to the loneliness experienced by employees, especially those who perceive their work as highly meaningful. Interventions focusing solely on increasing work meaningfulness may be insufficient or even counterproductive if not accompanied by measures aimed at improving social connections in the workplace. Thus, strategies aimed at reducing loneliness and enhancing work meaningfulness could have a significant impact on reducing CWB if both variables are considered.

This theoretical framework highlights the importance of a work environment that fosters both social connections and the development of a sense of professional purpose.

Limitations and Future Directions

There are at least three important limitations regarding the results of this study. The first limit regards the scales extracted from Research Central. The Workplace Loneliness Scale (LAWS) presents validity issues, as it was not compared with other similar instruments due to the lack of alternative scales at the time of its development. The sample used is limited and does not reflect the diversity of industries and hierarchical levels, and testing in specific contexts (certain country, educational level) raises questions about global applicability (Wright et al., 2006). The Counterproductive Work Behavior Questionnaire (CWB-C) has limited generalizability, being mostly tested on employed students, which calls into question its applicability to other professional categories. The authors acknowledge this limitation and recommend further studies on diversified professional groups (Spector et al., 2006). The Work and Meaning Inventory (WAMI) shows representativeness issues, having been validated on a single sample from a university organization. Validation is lacking in different organizational environments (corporations, NGOs, public sector), raising questions about functionality in non-academic sectors (Steger et al., 2012). Future research would benefit from applying more rigorous measurement tools to provide a more accurate representation of the phenomena analyzed.

The second limitation concerns the sampling method. The questionnaire was distributed through snowball sampling, resulting in low population generalizability. Participants were selected based on the social networks of initial participants, meaning the sample is not random, and employee groups less socially connected or less open about loneliness may be underrepresented. Future research is recommended to diversify the sample by using selection methods that minimize possible biases.

The third limitation is that participants completed self-reported questionnaires, which can influence the collected data since employees' perceived responses may differ from reality.

Conclusions

In conclusion, the study highlights that both individual factors (gender and education) and psychological factors (loneliness and work meaningfulness) play essential roles in the emergence of counterproductive work behaviors. By addressing these aspects, organizations can create a more positive work environment, reducing employees' tendency to engage in such behaviors and improving professional performance and satisfaction.

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STUDIA DOCTORALIA
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Keep Calm and Be a Dad: Psychosocial Factors and Fathers' Emotional Well-Being

Ioan Cristian Ungureanu

Florinda Golu

University of Bucharest

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University of Bucharest, Department of Psychology, 90 Panduri Av, Bucharest, RO.
Tel.: +40 (0) 31-425.34.45
E-mail address:
ioan-cristian.ungureanu44@s.fpse.unibuc.ro

ABSTRACT

The aim of this study was to examine how perceived social support (PSS), parental competence (PC), and parenting styles affect Romanian fathers' psychological well-being - as indicated by symptoms of depression, anxiety, and stress - and how these relationships are moderated by marital status, levels of neuroticism, and time spent with children. Using a cross-sectional design, the research was conducted on a nonclinical sample of 106 Romanian fathers (M = 42.15 years, SD = 7.33), of whom 66 were married and 40 were divorced or separated. Participants completed an online battery of questionnaires represented by MSPSS, PSOC, PSDQ-short, IPIP-Ro neuroticism, and DASS-21. Results showed that higher perceived social support was associated with significantly lower depressive symptoms and showed smaller, context-dependent associations with anxiety and stress. Parental competence emerged as a robust predictor of reduced depression and stress, with no modulation by marital status or time spent with children. Marital status significantly moderated the link between social support and depression: the protective effect of social support was stronger among married fathers than among divorced/separated fathers.

Keywords: perceived social support, parental competence, parenting styles, depression, anxiety, stress, marital status, neuroticism, fathers' mental health

1. INTRODUCTION

Over recent decades, research has shown that active paternal involvement contributes to children's cognitive, socio-emotional, and social development (Grossmann et al., 2002; Rowe et al., 2017). At the same time, when such involvement is lacking, children's exposure to developmental and mental-health risks increases (Flouri et al., 2015; Jiang et al., 2024; Yoon et al., 2024). Moreover, studies have shown that the father's own psychological distress is a critical part of this ecology: paternal depression and related difficulties are associated with lower involvement and less optimal parenting, with related consequences for children (Ramchandani et al., 2005, 2011; Wilson & Durbin, 2010). For example, Ayer et al. (2016) found that children of depressed fathers exhibited higher levels of anxiety, depression, and aggressive behavior than children of fathers without depression.

Psychosocial resources appear central in shaping fathers' adjustment. A systematic review identified perceived social support, the partner relationship, and access to professional support as key determinants of men's emotional adaptation to the paternal role; when these are lacking, fathers report heightened stress (e.g., fatigue, irritability, social withdrawal), isolation and non-belonging, and fear of failure in the parental role (Baldwin et al., 2018).

Despite this, parenting research continues to emphasize mothers disproportionately; comprehensive data on fathers remain limited, and many assessment tools are insufficiently adapted to fathers' involvement (Schoppe-Sullivan & Fagan, 2020). The scientifical understanding of fatherhood appears to be constrained by stereotyped portrayals and underrepresentation of cultural and socioeconomic diversity.

Data has shown consequences across developmental systems as a result of father absence or low-quality involvement. Father absence at age 3 predicted a higher likelihood of emotional and behavioral difficulties by age 5 (Flouri et al., 2015). Repercussions have been found at the biological level, as the absence of a biological father or the presence of a stepfather has been linked to accelerated sexual maturation in girls, with potential long-term physical and mental-health costs (Thutoemang & Oppong, 2023); findings that are consistent with a meta-analysis showing earlier menarche when biological fathers were absent in childhood ($r = .14$; Webster et al., 2014). Recent research aligns with this pattern: in rural China, absent or low-quality paternal involvement is associated with elevated risks of depression and anxiety among children and adolescents, whereas high-quality, intensive involvement is protective (Jiang et al., 2025); similarly, paternal involvement low in cognitive stimulation relates to poorer socio-emotional outcomes, including reduced empathy, diminished emotional security, and higher internalizing and externalizing symptoms (Yoon et al., 2024).

These societal stakes are easily observable in the Romanian population indicators. In 2023, over 214,936 children aged 7–17 were not enrolled in any form of primary, lower-secondary, upper-secondary, or vocational education (Ministry of Education, 2024). Early school leaving among 18–24-year-olds reached 16.6%—the highest rate in the European Union, compared to the EU average of 9.5% (European Commission, 2024)—and Romania remains among the countries with the highest proportions of below-standard performance in reading, mathematics, and science (OECD, 2024). The economic cost is substantial: approximately €15.7 billion were lost over the past 11 years due to school dropout (5.23% of Romania's annual GDP; Iliescu et al., 2024). A recent study has shown that children's literacy is tightly linked to parents' education, family reading habits, and children's reading autonomy, with parental involvement—including that of fathers—mattering most as a model of competence and attitude rather than as isolated activities (Petrescu & Iliescu, 2024).

On the other hand, research in targeted interventions have shown results. Fathers' involvement can be strengthened when programs address fathers' specific needs; these interventions have been associated with better father–child relationships, enhanced paternal emotional skills, increased parental confidence, and more positive co-parenting (Henry et al., 2020). Further data links paternal involvement with healthier child weight trajectories, better adherence to chronic-illness treatments, fewer mental-health problems, and improved language development, with unique affective and cognitive contributions that complement maternal influences; policy recommendations include integrating fathers into perinatal care, offering dedicated paternal leave, monitoring fathers' health, and countering limiting stereotypes (Yogman & Eppel, 2021).

With all this data at hand, Romanian research on parental stress and child mental health remains limited (Păsărelu et al., 2022), and evidence specific to fathers is particularly scarce: recent work highlights the need for father-centered studies to properly understand paternal contributions to parental stress and family dynamics (Rusu et al., 2025).

The present study addresses these gaps by examining associations between psychosocial factors—perceived social support, parental competence, and parenting styles—and Romanian fathers' psychological distress, while testing whether these associations are moderated by personality (with an emphasis on neuroticism), marital status (married vs. divorced/separated), and daily time spent with children.

Perceived Social Support (PSS)

Perceived social support (PSS) has been documented since the 1970s as the perception of being loved, valued, and embedded in communicative networks (Cobb, 1976) and as a health-protective buffer against stress (Cassel, 1976). More recent research integrates direct effects—support benefits health regardless of stress—and buffering functions—support attenuates stress reactivity (Uchino et al., 2012; Holt-Lunstad et al., 2017; Lakey & Orehek, 2011; Thoits, 2011). Classic syntheses distinguish emotional, instrumental, informational,

and appraisal support, each differentially predictive of health outcomes (House et al., 1988).

PSS has been observed to focus on the quality of relationships and reliably predicts psychological outcomes, suggesting interventions should prioritize improving relationship quality over quantity (Yang et al., 2022). Longitudinal evidence also indicates bidirectionality: higher perceived support predicts later reductions in depressive symptoms, whereas elevated depression/PTSD symptoms forecast subsequent declines in perceived support (Thomas et al., 2022).

When it comes to parents specifically, support reduces stress and improves interaction quality; evidence spans typical families and those facing disability, where structured counseling and groups reduce parental stress (McConnell et al., 2010; Zaidman-Zait et al., 2016). Higher parental support correlates with more positive, less controlling practices linked to healthier child development (Weiss et al., 2021).

For fathers, support reduces isolation, anxiety, and depression; although men may deprioritize their own mental health and hesitate to seek help (Darwin et al., 2017). Partner and network support predict better mood in the perinatal/early parenting periods; disruptions (e.g., during COVID-19) heightened isolation, underscoring the protective role of informal ties (Bruno et al., 2020; Poulos et al., 2021). Postpartum, targeted support reduces fathers' loneliness and fosters community (Murray et al., 2024; Wells et al., 2020). Cross-cultural data similarly link embeddedness in supportive communities with fewer depressive symptoms and more positive parenting (Massoudi et al., 2016; Waller et al., 2018).

Consistent with this literature, PSS was operationalized with the Multidimensional Scale of Perceived Social Support (MSPSS), capturing support from family, friends, and significant other.

Parental Self-Efficacy (PSE)

PSE refers to parents' beliefs about their capability to organize and execute the actions required in parenting; it shapes motivation, effort, persistence, and affect (Bandura et al., 1997). A systematic review shows PSE is pivotal for parents' mental health and children's adaptive development; yet the literature's mother-heavy focus suggests there is a need for father-focused work (Albanese et al., 2019). However, when father data exist, higher PSE is associated with more positive paternal attitudes and greater direct involvement (Howard, 2006; Giallo et al., 2013). At the same time, research shows there is a change in the journey of fathers as they adapt to the role: PSE typically increases—paralleling maternal findings—and supports involvement under challenge (e.g., child disability) (Pinto et al., 2016; Boyraz & Sayger, 2010). Early in fatherhood, higher neuroticism predicts lower PSE, suggesting a personality-linked vulnerability to reduced efficacy beliefs (Donithen & Schoppe-Sullivan, 2022).

Parental satisfaction (PS)

While PSE and PS are correlated, they do have distinct components: PSE is efficacy-belief, whereas PS captures the affective payoff and congruence between expectations and the lived parenting role.

In this study, both are assessed with the Parenting Sense of Competence Scale (PSOC) (Johnston & Mash, 1989; Rogers & Matthews, 2004). Higher PS indicates more effective co-parenting and better couple functioning, creating beneficial transference into the parent–child relationship (Peltz et al., 2018). PS appears to be sensitive to contextual change—for example, reduced alcohol use among alcoholic fathers predicted improvements in PS across treatment (Watkins et al., 2009). Among nonresident fathers, perceived partner support and PSE help explain links between fathers' satisfaction with their own parenting and children's perceptions of paternal involvement (Caldwell et al., 2013).

To be noted, going forward: PSE and PS are used consistently and refer to their joint measurement via PSOC.

Parenting Styles

Parenting styles are theorized as stable configurations of attitudes and behaviors through which parents influence children; the best-known framework distinguishes authoritative, authoritarian, and permissive styles along the axes of demandingness and responsiveness (Baumrind, 1966, 1971). This view later was extended to include a neglectful style (low on both axes) within a two-dimensional model (Maccoby & Martin, 1983). Conceptually, styles function as a psychosocial context that shapes the effectiveness of specific parenting practices; the authoritative style is most frequently linked to positive outcomes – however, culture and family socialization goals are a criterion, hence the importance of distinguishing styles from practices (Darling & Steinberg, 1993). Another key differentiator is the contrast between behavioral control (generally adaptive) and psychological control (detrimental to socio-emotional development) (Barber, 1996, 2005).

Data shows that beyond effects on children; styles relate to parents' functioning. Among fathers, authoritarian and permissive patterns are associated with lower perceived parenting competence and greater dysregulation, with implications for both father and child (Carbone et al., 2024). Intergenerational findings suggest that fathers exposed to controlling, unaffectionate parenting are less supportive of their children's negative emotions and show weaker emotion regulation—which in fact is an empirical pattern showing Belsky's process model linking family-of-origin experiences to parental characteristics and resources (Belsky, 1984; Yan et al., 2016). Meta-analytic and cross-national reviews also suggest gendered differences: on average, mothers display more responsiveness, involvement, and authoritative behaviors, whereas fathers are perceived as more authoritarian and less engaged in affective socialization (Yaffe, 2020).

Neuroticism

Neuroticism is viewed as a stable tendency to experience intense negative affect; showing longitudinal links to psychological distress and functions as a transdiagnostic risk factor (Lahey, 2009; Jeronimus et al., 2016). This goes beyond mental health, as higher neuroticism relates to poorer physical-health outcomes, including shorter lifespan and more somatic complaints (Hill et al., 2019; Vassend et al., 2017).

In parenting, elevated neuroticism has been associated with greater distress and instability under stress (e.g., COVID-19 lockdowns), whereas profiles marked by higher emotional stability are associated with more effective parenting behaviors; meta-analytic evidence links lower neuroticism and higher agreeableness to greater parental warmth (Mazza et al., 2020; McCabe, 2014; Prinzie et al., 2009). Between generations, parental neuroticism predicts maladaptive coping and children's emotional dysregulation via mechanisms such as rumination (Sachs-Ericsson et al., 2014). As the diathesis–stress view suggests, neuroticism has been found to amplify the impact of stressors rather than operating as a direct cause: daily-diary work shows moderation of stressor–outcome links under high-stress days, and in parents, neuroticism magnifies effects of marital conflict on parental burnout (Donithen & Schoppe-Sullivan, 2022; Neupert et al., 2008).

Accordingly, in this study, neuroticism was modeled as a moderator of predictor–distress associations, anticipating stronger effects at higher trait levels.

Marital Status

Marital status appears to moderate the dynamics between psychosocial resources and parents' emotional outcomes. Relative to unmarried/divorced/widowed adults, married individuals show a stronger association between social support and happiness, indicating amplified benefits of support in marriage (Yuan, 2024). Differences seem to persist across generations: when children reach adulthood, unmarried (vs. married) fathers report less contact, support, and relationship quality, suggesting durable status-linked gaps in paternal involvement (Fingerman et al., 2020). However, studies have shown that higher paternal involvement during marriage predicts better father–child ties after divorce, while divorced fathers' ongoing engagement appears to be shaped by cooperative co-parenting with former partners (DeGarmo & Forgatch, 2011; Kalmijn, 2015).

Data also suggest that contextual work factors intersect with status pathways. Job satisfaction in fathers relates to more constructive parenting, whereas work stress can elicit compensatory maternal behaviors, underscoring dynamic, family-system adjustments that vary by marital context (Gong et al., 2024; Ju et al., 2023).

Psychological distress

Psychological distress is conceptualized as a dimensional grouping of depression, anxiety, and stress (Lovibond & Lovibond, 1995a). Contemporary transdiagnostic models hypothesize a shared general distress factor with differentiating components (Clark & Watson, 1991), and quantitative syntheses support an integrated spectrum rather than fully discrete categories (Kotov et al., 2017). Although the DSM-5 retains categorical diagnoses, it incorporates severity specifiers, consistent with dimensional assessment in research (APA, 2013; Insel et al., 2010).

Keeping with this framework, fathers' distress shows contextual links. During the transition to fatherhood, depressive symptoms often increase, particularly among younger fathers (Garfield et al., 2014). Family ecology seems to influence the outcome: child sleep problems are associated with poorer overall health and well-being in fathers, with weaker correlations to paternal depressive symptoms than those observed in mothers (Coles et al., 2022). Research suggests neuroendocrine adaptations: testosterone commonly declines after birth and is associated with greater caregiving and higher marital satisfaction, while cortisol displays time-sensitive, bidirectional associations with parental engagement across the perinatal period (Storey et al., 2020). From a public-health perspective, paternal postpartum depression has an estimated prevalence of 24.06% in the first year after birth (peaking in the first three months), and risk is elevated by prior mental-health history, unemployment/financial strain, couple dysfunction, maternal depression, and perceived stress (Ansari et al., 2021; Dhanpal & Shil, 2024).

Treating distress as a dimensional construct comprising depression, anxiety, and stress justifies the use of continuous DASS-21 outcomes and supports analyzing fathers' distress as a coherent risk profile shaped by psychosocial resources and contexts.

All the above considered, the following hypotheses were considered:

H1. *A higher level of Perceived Social Support (PSS) predicts a decrease in fathers' psycho-emotional distress (measured by the DASS subscales—Depression, Anxiety, and Stress) over and above the variance explained by secondary psychosocial variables: Perceived Parental Competence (PC), Authoritative/Democratic Parenting Style (SPe), and Authoritarian Parenting Style (SPn).* Following the assessment of Cronbach's alpha, the Permissive Parenting Style showed low internal consistency and was therefore excluded from hypothesis testing on grounds of insufficient reliability.

H2. *Marital status (D6) moderates the relationship between PSS and fathers' psycho-emotional distress (DASS—Depression, Anxiety, Stress).*

H2a. *The PSS–Depression, PSS–Anxiety, and PSS–Stress relationships are expected to be stronger among divorced/separated fathers*.

H3. *Marital status (D6) moderates the relationship between PC and fathers' psycho-emotional distress (DASS—Depression, Anxiety, Stress).*

H3a. *The PC–Depression, PC–Anxiety, and PC–Stress relationships are expected to be stronger among divorced/separated fathers.*

H4. *Neuroticism moderates the relationships between PSS and fathers' psycho-emotional distress (DASS—Depression, Anxiety, Stress).*

H4a. *The PSS–Depression, PSS–Anxiety, and PSS–Stress relationships are expected to be stronger at higher levels of Neuroticism.*

H5. *Neuroticism moderates the relationships between PC and fathers' psycho-emotional distress (DASS—Depression, Anxiety, Stress).*

H5a. *The PC–Depression, PC–Anxiety, and PC–Stress relationships are expected to be stronger at higher levels of Neuroticism.*

H6. *Time spent with children moderates the relationship between PSS and fathers' psycho-emotional distress (DASS—Depression, Anxiety, Stress).*

H6a. *The PSS–Depression, PSS–Anxiety, and PSS–Stress relationships are expected to be stronger at higher levels of time spent with children.*

H7. *Time spent with children moderates the relationship between PC and fathers' psycho-emotional distress (DASS—Depression, Anxiety, Stress).*

H7a. *The PC–Depression, PC–Anxiety, and PC–Stress relationships are expected to be stronger at higher levels of time spent with children.*

2. METHOD

Participants and procedure

A number of 106 Romanian fathers from a non-clinical community sample were analyzed; they completed all measures and demographics (age 28–78, M = 42.15, SD = 7.33). Most fathers were in urban areas (93 urban, 13 rural areas).

In terms of education, a large proportion of the respondents were at least university-level educated: high school 22 (20.75%), bachelor 49 (46.22%), master 32 (30.18%), PhD 3 (2.83%). Professionally, 67 were full-time employees, 4 part-time, 30 self-employed (13 freelance, 17 entrepreneurs), 3 unemployed, and 2 retired. At the time of the study the participants were split: 66 married (62.3%), 40 divorced/separated (37.7%).

Time with children in the full sample was: <1 h/day = 15 fathers (14.1%), 1–2 h/day = 20 (18.8%), 2–4 h/day = 37 (34.9%), and >4 h/day = 34 (32.1%). Stratified by marital status, clear differences emerged: among married fathers, 37.9% reported >4 h/day and 31.8% reported 2–4 h/day; among divorced/separated fathers, only 22.5% reported >4 h/day, while 40% fell in the 2–4 h/day range. Divorced/separated fathers were also more likely to spend <1 h/day (20%) than married fathers (10.6%). These contrasts justify modeling "daily time with children" as a potential moderator of links between psychosocial factors and paternal distress.

Recruitment used voluntary online self-selection (father-focused communities/direct outreach via WhatsApp, Instagram, Facebook, TikTok). Data were collected 25 March–06 May 2025 via anonymous Google Forms with digital informed consent; non-consenting respondents were exited automatically (1 exclusion). Mandatory responses yielded 0% missing data.

Measures

Psychological distress (DV) was measured with DASS-21—Depression, Anxiety, Stress; Romanian validation reported by Albu (2011). Internal consistency for this study was: Depression α = .89, Anxiety α = .87, Stress α = .86.

Perceived social support (primary IV) was measured using MSPSS (Zimet et al., 1988; Romanian validation Alexe et al., 2021). Internal consistency for this study was: total α = .94; Family α = .94, Friends α = .95, Significant Other α = .97.

Parental competence (secondary IV) was measured with PSOC (Johnston & Mash, 1989). PSOC items were translated to Romanian and lightly adapted for father-specific wording; six items were edited (Items 5, 6, 13, 14, 15, 17); e.g., "If being a father were more interesting…", preserving construct meaning; internal consistency remained adequate (Total α = .85; Efficacy α = .83; Satisfaction α = .80).

Parenting styles were assessed with the short form of the Parenting Styles and Dimensions Questionnaire (PSDQ-short; Robinson et al., 2001), which measures three dimensions aligned with Baumrind's typology—authoritative (15 items), authoritarian (12 items), and permissive (5 items)—operationalized on the axes of demandingness and responsiveness (Baumrind, 1966, 1971; see also Oliveira et al., 2018). The instrument was translated by the author, and its internal consistency was evaluated on the present Romanian sample. Original validation reported α = .86 (authoritative), α = .82 (authoritarian), α = .64 (permissive). In this study, internal consistencies were authoritative α = .88, authoritarian α = .82, permissive α = .52; a total score α = .85 is also reported in the thesis. Given the low reliability of the permissive subscale (α = .52), it was excluded from all inferential analyses.

Design and analysis

The research was designed as an observational, correlational, cross-sectional study. The questionnaire was via online administration, and there was no manipulation or randomization. Analyses comprised hierarchical regressions for incremental validity and moderation models with interaction terms and simple-slope probes for hypothesized moderators.

Power analysis

An a-priori multiple-regression power analysis (pwr, R) indicated N = 123; the final N = 106 was slightly below target, but adequate for medium–large effects in this design; small effects should be interpreted cautiously.

3. RESULTS

Descriptives, reliability, and missing data

All 106 participants were fathers recruited via voluntary online self-selection. No missing data was recorded (mandatory responses). Internal consistencies were adequate across constructs (αs as shown on Table 1's diagonal; DASS Depression .89, Anxiety .87, Stress .86; MSPSS Total .94; PSOC Total .85; PSDQ Authoritative .88, Authoritarian .82; Permissive .52). Given the low α for Permissive, that subscale was excluded from inferential tests.

Correlations

As anticipated, fathers reporting more perceived social support (PSS) and higher parental competence (PC/PSOC) showed lower distress: DASS total correlated with PSS (ρ = −.35, p < .001) and PC (ρ = −.63, p < .001). Neuroticism correlated positively and strongly with DASS (ρ = .77, p < .001). Parenting styles aligned with the expected pattern: Authoritative related negatively to DASS (ρ = −.27, p < .01), Authoritarian positively to DASS (ρ = .24, p < .05). Marital status correlated negatively with PSS (ρ = −.20, p < .05), and time with children correlated negatively with DASS (ρ = −.36, p < .001). MSPSS and PSOC subscales intercorrelated < .80, supporting simultaneous use in regression.

Table 1

Descriptive statistics and Spearman correlations among study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.DASS	(.95)															
2. DAD	.92***	(.89)														
3. DAA	.83***	.65***	(.87)													
4. DAS	.94***	.79***	.74***	(.86)												
5. PSS	-.35***	-.44***	-.16†	-.28***	(.94)											
6. PSSF	-.42***	-.49***	–.20†	-.38***	.85***	(.94)										
7. PSSR	-.24***	-.32***	-.11	-.18*	.77***	.52***	(.95)									
8. PSSS	-.30***	-.38***	–.17	-.22*	.85***	.73***	.44***	(.97)								
9. PC	-.63***	-.64***	-.45***	-.59***	.40***	.51***	.29***	.29***	(.85)							
10. PCE	-.43***	-.45***	-.31***	-.42***	.22***	.37***	.15*	.12	.78***	(.83)						
11. PCS	-.64***	-.64***	-.46***	-.59***	.42***	.48***	.33***	.32***	.91***	.48***	(.80)					
12. SPe	-.27**	-.30**	-.21*	-.21*	.18†	.23*	.20*	.09	.44***	.46***	.32***	(.88)				
13. SPn	.24***	.23***	.10	.28**	-.13†	-.19*	-.14	.00	-.43***	-.33***	-.40***	.32***	(.82)			
14. N	.77***	.79***	.56***	.72***	-.48***	-.55***	-.31***	-.40***	-.82***	-.60***	-.77***	-.40***	.38***	(.92)		
15. D6	.05	.04	.13	.00	-.20*	-.17†	.06	.01	-.32***	.08	.03	.27***	-.23**	-.01		
16. D12	–.36***	–.33***	–.37***	–.30***	.03	.07	.04	–.01	.17†	.07	.24**	-.15	.24**	.05		
M	13.50	4.75	2.89	5.87	63.29	21.33	20.37	21.59	74.92	37.22	37.71	65.08	20.12	25.58	1.38	2.85
SD	10.89	4.43	3.42	4.02	17.74	6.92	6.82	7.78	11.86	5.64	8.05	7.04	5.26	8.86	.49	1.03

Note. Internal consistency coefficients (Cronbach's α) appear on the diagonal (in parentheses). Correlations are Spearman's ρ. Ordinal codings: D6 (Marital status) = 1 Married, 2 Divorced/Separated; D12 (Daily time with child) = 1 <1 h, 2 1–2 h, 3 2–4 h, 4 >4 h. DASS = Depression, Anxiety, and Stress (total score; DASS-21); DAD = DASS–Depression; DAA = DASS–Anxiety; DAS = DASS–Stress. PSS = Perceived Social Support (MSPSS total); PSSF = PSS–Family; PSSR = PSS–Friends; PSSS = PSS–Significant Other. PC = Parenting Competence (PSOC total); PCE = Parental Efficacy; PCS = Parental Satisfaction, SPe = Parenting Style—Authoritative; SPn = Parenting Style—Authoritarian. N = Neuroticism; M = Mean; SD = Standard deviation. *p<.05; **p<.01; ***p<.001..

Table 2
Moderators descriptions

Moderator	Categories	n	%
Marital Status	Married	66	62,3 %
	Divorced / Separated	40	37,7 %
Time spent with children / day	< 1 h (< 7 h/week)	15	14,1 %
	1-2 h (≈ 7-14 h/week)	20	18,8 %
	2-4 h (≈ 14-28 h/week)	37	34,9 %
	> 4 h (> 28 h/week)	34	32,1 %

Predictor operationalization (parsimony)

For parsimony, we modeled perceived social support and parenting competence with their total scores (MSPSS-Total; PSOC-Total), as subscales did not provide meaningful incremental variance and increased model complexity without improving fit (VIFs < 1.3).

Comparisons favored PSS total over its sources (β = −.12, p = .023; ΔR^2 = .032; VIF < 1.3). Within PC, Satisfaction contributed beyond Efficacy (Satisfaction β = −.61, p < .001; Efficacy β = −.21, p = .258). Inferential models therefore used PSS total and PC total, matching the study plan.

Inferential Statistical Analysis

All analyses were conducted in RStudio 2025.05.0+496 "Mariposa Orchid" running R 4.3.2 (R Core Team, 2024). Packages used for the statistical analysis: openxlsx (v4.2.8) for Excel export; readxl (v1.4.5) for .xlsx import; psych (v2.5.3) for descriptives and Cronbach's α; car (v3.1-3) for recoding and collinearity diagnostics (VIF, tolerance); Hmisc (v5.2-3) for Spearman correlation matrices; lavaan (v0.6-19) for hierarchical regression and modeling; ggplot2 (v3.5.2) for statistical visualizations (histograms, Q–Q plots); dplyr (v1.1.4) and tidyr (v1.3.1) for data wrangling; pwr (v1.3-0) for power analysis.

Perceived Social Support (PSS) showed incremental predictive value for Depression only beyond Parenting Competence (PC) and parenting styles (β = −0.061, p < .01; ΔR^2 = .049).

Marital status moderated PSS–Depression (interaction b_3 = 0.086, p = .048): the protective slope was stronger for married fathers (b = −0.156, p < .001) than for divorced/separated (b = −0.070, p = .028); no moderation emerged for Anxiety or Stress.

PC showed robust main effects (e.g., Depression b = −0.364, p < .001; Stress b = −0.246, p = .003), without moderation by marital status or time with child.

Time with child moderated PSS–Anxiety (interaction b_3 = 0.032, p = .033): PSS was protective up to 1–2 h/day (D12=1: b = −0.091, p = .001; D12=2: b = −0.059, p = .002) but not beyond 2 h/day.

The PSS × Neuroticism interaction was significant for Stress at the model level (b_3 = −0.004, p = .005) but simple slopes were non-significant; for Depression, the interaction was non-significant (p = .138) though the simple slope indicated protection at high Neuroticism (p = .044).

Interactions with PC × Neuroticism were uniformly non-significant.

Following these main findings, H1, H2 and H4 are detailed in the following paragraphs.

Table 3
Incremental validity of a PSS over PC and Authoritative and Authoritarian Parenting Styles (H1)

Step	Predictor	Depression			Anxiety			Stress		
		β	R^2	ΔR^2	β	R^2	ΔR^2	B	R^2	ΔR^2
1	PC	-.229***			-.097**			-.200***		
	SPe	-.013	.380	-	-.071	.162	-	-.0003	.361	-
	SPn	-.013			-.031			.017		
2	PC	-.191***			-.082*			-.178***		
	SPe	-.017	.429	.049	-.072	.175	.013	-.002	.382	.021
	SPn	-.012			-.031			.018		
	PSS	-.061**			-.024			-.036		

Note. PSS = Perceived Social Support; PC = Parenting Competence; SPe = Parenting Style—Authoritative (Authoritative/Democratic); SPn = Parenting Style—Authoritarian. *p < .05; **p < .01; ***p < .001.

PSS contributed incremental variance only for Depression (β = −0.061, p < .01; ΔR^2 = .049). For Anxiety and Stress, PSS did not add significant variance. SPe and SPn were not significant in any model. H1 supported for Depression only.

Table 4

Moderation of Marital Status (D6) in the Relationship Between Perceived Social Support (PSS) and Depression (DAD) (Marital status D6 × PSS moderation on distress)

Effect	B	SE	95% CI		p
			LL	UL	
PSS	-.242	.067	–.313	–.171	< .001
D6	-6.172	2.806	–11.523	–.821	.028
PSS x D6	.086	.043	.003	.169	.048
Simple slope (mar.)	-.156	.029	–.213	–.099	< .001
Simpe slope (div.)	-.070	.032	–.131	–.009	.028

Note: PSS = Perceived Social Support; D6 = Marital Status; Simple slope (mar.) = effect for married fathers; Simple slope (div.) = effect for divorced/separated fathers.

In the Depression model, PSS showed a significant main effect (b_1 = −.242, SE = .067, 95% CI [−.313, −.171], p < .001) and marital status (D6) was also significant (b_2 = −6.172, SE = 2.806, 95% CI [−11.523, −.821], p = .028). Rather unexpected, the PSS × D6 interaction was significant (b_3 = .086, SE = .043, 95% CI [0.003, 0.169], p = .048), with simple slopes indicating stronger protection among married fathers (D6 = 1: b = −.156, SE = .029, 95% CI [−.213, −.099], p < .001) than among divorced/separated fathers (D6 = 2: b = −.070, SE = .032, 95% CI [−.131, −.009], p = .028).

By contrast, in the Anxiety model PSS (b_1 = −.095, p = .096), D6 (b_2 = −1.763, p = .461), and their interaction (b_3 = .032, p = .388) were non-significant, though simple slopes suggested protection only among married fathers (b = −.063, p = .012) and not among divorced/separated (b = −.031, p = .260). Similarly, for Stress, neither PSS (b_1 = −.102, p = .110), nor D6 (b_2 = −1.308, p = .627), nor the interaction (b_3 = .009, p = .826) reached significance, even though simple slopes were protective in both groups (married: b = −.093, p = .001; divorced/separated: b = −0.084, p = .007).

Overall, H2 was supported only for Depression, and H2a was not supported (the effect was stronger among married, not divorced/separated).

Table 5

Moderating effect of Neuroticism on the relationship between Perceived Social Support and Depression (*Neuroticism × PSS)*

Effect	B	SE	95% CI		p
			LL	UL	
PSS	.038	.045	-.050	.126	.400
N	.512	.098	.320	.704	<.001
PSS x N	-.002	.002	-.006	.002	.138
Simple slope (N+)	.038	.019	-.075	-.001	.044
Simple slope (Nm)	-.020	.017	-.053	.013	.219
Simple slope (N-)	-.000	.023	-.045	.045	.990

Note: PSS = Perceived Social Support; N = Neuroticism; Simple slope (N+) = effect at high Neuroticism; Simple slope (Nm) = effect at medium Neuroticism; Simple slope (N-) = effect at low Neuroticism.

For Depression, PSS showed no main effect (b_1 = .038, p = .400), Neuroticism was positive and significant (b_2 = .512, p < .001), and the interaction was non-significant (b_3 = −.002, p = .138). Simple slopes indicated a significant PSS effect at high N (.038, 95% CI [−.075, −.001], p = .044), but not at medium (p = .219) or low N (p = .990).

For Anxiety, neither PSS (b_1 = .066, p = .172) nor the interaction (b_3 = −.002, p = .145) was significant; all simple slopes were ns.

For Stress, PSS (b_1 = .109, p = .013) and N (b_2 = .587, p < .001) were significant, and PSS × N was significant at the model level (b_3 = −.004, p = .005), yet all simple slopes were ns (high N: p = .078; medium: p = .977; low: p = .092), warranting cautious interpretation.

Overall, data analysis suggests partial support for H4 (model-level interaction for Stress; Depression shows a significant simple slope at high N despite a non-significant interaction)..

4. DISCUSSIONS

For Depression, the pattern in which perceived social support (PSS) operated primarily as a contextual buffer, with a stronger association among married fathers, is consistent with classic social integration and marital resource models. In this sample, the stronger slope for married fathers (b = −.156) compared to divorced/separated fathers (b = −.070) suggests that marriage functions not only as a formal status, but as an anchor for more stable, integrated networks of support - emotional, instrumental, and normative. This aligns with Umberson's (1992) view of marriage as a key context through which individuals become embedded in social ties that regulate health-related behaviors and emotions, as well as with Amato's (2014) synthesis indicating that married adults tend to report better mental health than non-married counterparts partly because of denser and more reliable support structures. Within this framework, the weaker association between PSS and depression among divorced/separated fathers can be interpreted as a sign that their supportive networks are either more fragile, more fragmented (e.g., split between family of origin, ex-partner, and new partners), or less accessible in day-to-day parenting demands. Even when these fathers perceive support, its actual availability and mobilizability in moments of distress may be reduced, which could dilute its protective impact on depressive symptoms. This interpretation is also compatible with broader evidence that high-quality, embedded social relationships have robust protective effects on mental health (House et al., 1988; Holt-Lunstad et al., 2017), but that these effects are contingent on relationship stability and role security - dimensions that are often challenged post-divorce (DeGarmo & Forgatch, 2011; Kalmijn, 2015).

By contrast, parental competence (PC) emerged as a robust and status-invariant predictor of lower depressive symptoms (b = −.364, p < .001). This pattern reinforces the idea - central in the parental self-efficacy literature - that internalized beliefs of competence and satisfaction in the parental role function as intrapsychic buffers against distress (Albanese et al., 2019; Bandura et al., 1997; Jones & Prinz, 2005). Because PC reflects a relatively stable cognitive-affective appraisal ("I can handle parenting challenges"), it may protect fathers from hopelessness and self-blame even when external conditions (relationship status, time constraints, economic stress) are not optimal. The fact that PC predicted depression similarly in married and divorced/separated fathers suggests that it captures a resource that is less dependent on marital context and more closely tied to personal mastery, problem-solving, and meaning-making in the father role. This is also consistent with studies showing that higher parenting self-efficacy is associated with better parental adjustment and lower psychopathology across diverse family structures (Albanese et al., 2019; Donithen & Schoppe-Sullivan, 2022; Giallo et al., 2012;).

For Anxiety, the significant time × PSS interaction (b_3 = .032, p = .033) indicates a more nuanced picture: when fathers spend relatively little daily time with their children (≤ 2 hours/day), higher PSS is associated with lower anxiety, but this protective link essentially disappears once daily involvement exceeds 2 hours. One plausible interpretation is a demand-saturation mechanism. At lower levels of hands-on involvement, fathers' anxiety may be more sensitive to general perceptions of being supported by partner, extended family, or friends - PSS helps them feel less alone with their worries about parenting, work–family balance, and financial responsibilities. However, as involvement intensifies and fathers spend more time in direct contact with children, the emotional and regulatory demands of caregiving (managing conflicts, school demands, behavioral difficulties, daily routines) may become more salient drivers of anxiety than global, trait-like perceptions of support. In other words, once fathers are heavily involved, anxiety may be shaped more by moment-to-moment emotion regulation challenges and child-related stressors (Moed et al., 2016; Păsărelu et al., 2022) than by the more distal sense of "having people I can count on." This is congruent with research showing that high involvement, while generally beneficial for children, can expose parents to more intense emotional reciprocity and stress (Ju et al., 2023; Moed et al., 2016), so that perceived support becomes a less discriminating factor: even well-supported fathers may feel anxious when daily demands are high and continuous. Another, complementary reading is that highly involved fathers may already be mobilizing their support networks to the maximum, so variance in PSS reflects less "additional" buffering and more a background condition.

For Stress, the PSS × Neuroticism interaction reached significance at the model level (b_3 = −.004, p = .005), but subsequent simple-slope analyses were non-significant, suggesting a trend rather than a stable, well-powered moderation effect. The direction of the interaction—stronger protective associations of PSS at higher levels of neuroticism—is nevertheless coherent with vulnerability-amplification and diathesis–stress perspectives (Monroe & Simons, 1991). These frameworks propose that individuals high in neuroticism are more reactive to stressors but also, under some conditions, more responsive to supportive or protective contexts. Meta-analytic and longitudinal work has shown that neuroticism confers sustained vulnerability to internalizing problems (Jeronimus et al., 2016), and that daily stressors have a stronger impact on well-being and cognitive functioning among highly neurotic adults (Neupert et al., 2008). In this light, the current pattern tentatively suggests that for fathers who are dispositionally prone to negative affect, perceived social support may be particularly consequential in attenuating stress responses. However, given the limited power and non-significant simple slopes, this interpretation should be regarded as provisional and in need of replication in larger father samples, ideally with repeated-measures designs that can more precisely track stress reactivity as a function of personality and support.

Across all three outcomes, parental competence again showed a consistent, status- and time-independent protective role (for Stress: b = −.246, p = .003). This converges with a competence-linked coping account: fathers who perceive themselves as capable, effective, and satisfied in their parenting role may appraise stressors as more manageable, engage more readily in problem-focused coping, and experience less chronic physiological activation in response to parenting challenges (Albanese et al., 2019; Jones & Prinz, 2005). In addition, higher PC is likely intertwined with more constructive parenting behaviors (e.g., warmth, structure, less coercive discipline; Darling & Steinberg, 1993; Johnston & Mash, 1989), which in turn reduce child behavior problems and the frequency of emotionally taxing parent-child interactions—a dynamic that has been documented in both mothers and fathers (Giallo et al., 2012; Păsărelu et al., 2022). Taken together, the present findings suggest that while contextual resources such as marital status and perceived social support shape how fathers experience depression, anxiety, and stress, intrapsychic resources such as parental competence exert a broad, cross-contextual protective influence. This supports the idea that interventions for fathers' mental health might need a dual focus: strengthening social connectedness and relational stability on the one hand, and enhancing fathers' sense of efficacy and mastery in their parenting role on the other.

Conclusion and practical implications

In Romanian fathers, PSS offers incremental protection against depressive symptoms, amplified in marriage and most evident for anxiety when daily contact is low; PC delivers broad, moderator-independent protection against Depression and Stress. Neuroticism covaries strongly with distress, with only tentative moderation of PSS effects. Together, these findings support dual-track interventions—network-oriented supports and competence-building—attuned to Romanian family contexts.

The results of this study offer several important implications for father-focused interventions, family support programs, and mental health practitioners working with diverse family structures.

First, the finding that perceived social support (PSS) operates as a stronger buffer for depression among married fathers compared to divorced/separated fathers underscores the need for relationship-sensitive intervention models. Practitioners should recognize that fathers experiencing marital dissolution often lose access to stable, embedded support networks, making them more vulnerable to depressive symptoms despite reporting moderate levels of support. Programs designed for divorced or separated fathers might therefore prioritize rebuilding social networks, strengthening ties with peers, extended family, and father-support groups, and providing structured opportunities for interpersonal connection. From a policy perspective, this suggests value in community infrastructures that actively facilitate social integration for non-residential or separated fathers.

Second, the consistently strong association between parental competence (PC) and lower levels of depression, anxiety, and stress across all demographic and contextual categories suggests that father-focused mental health programs should directly target parenting self-efficacy. Skills-based approaches—such as guided mastery experiences, modeling of effective parenting strategies, and feedback mechanisms that reinforce agency—may be particularly beneficial. Because PC is an intrapsychic resource relatively independent of marital status or daily childcare load, it represents a promising universal intervention target. Parenting programs that validate fathers' efforts, highlight progress, and emphasize strengths-based approaches are likely to promote psychological resilience and reduce internalizing symptoms.

Third, the time × PSS interaction for anxiety indicates that fathers who spend more than two hours per day in hands-on caregiving may experience anxiety driven primarily by immediate regulatory and emotional demands, rather than by broad perceptions of support. This implies that interventions for highly involved fathers should include emotion regulation training, stress-inoculation strategies, and micro-skills for real-time parenting challenges (e.g., de-escalation, co-regulation with young children). For these fathers, enhancing global social support may be less impactful than providing situational coping tools that can be deployed during demanding caregiving episodes. Father-inclusive clinical settings should therefore incorporate components such as mindfulness for parenting, cognitive reframing for challenging child behaviors, and structured routines that reduce decision fatigue.

Fourth, the tentative PSS × Neuroticism moderation for stress suggests that fathers high in neuroticism may be especially responsive to increases in perceived support. This offers a strategic entry point for clinicians: fathers with dispositional vulnerability might benefit from therapies that bolster their perception and utilization of support, such as interpersonal therapy (IPT), acceptance-based approaches, or interventions that strengthen help-seeking attitudes. Even if the moderation was not robustly significant in simple-slope analyses, the pattern points toward a differential susceptibility model, whereby highly neurotic fathers may show the greatest gains from improved relational environments. Screening for neuroticism in fatherhood or family programs could help tailor support intensity and format.

Finally, these findings collectively indicate that fatherhood interventions should move beyond a one-size-fits-all model. Programs must be context-aware (considering marital status and caregiving load), person-centered (accounting for personality factors such as neuroticism), and resource-oriented (mobilizing both external support networks and internal competence beliefs). Policymakers and family service providers should recognize fathers as active agents within family systems and design supports that fortify both relational embeddedness

and personal efficacy. The stability, well-being, and adjustment of fathers—whether married, separated, highly involved, or personality-vulnerable—ultimately contribute to healthier developmental contexts for children and more resilient family systems overall.

Limitations

Self-report, cross-sectional data invite shared-method variance, desirability bias, and no causal ordering. The voluntary online, urban-leaning sample (N = 106) limits generalizability and reduces sensitivity to small interactions; single-item moderators (status, time) preclude internal consistency estimates.

Future directions

Extending the psychosocial ecology with financial stress/support, community resources (peer groups), and access to counseling would broaden the understanding of Romanian fathers. Adopting multi-wave longitudinal designs (e.g., 6-month lags) would lead to stronger correlations. Broaden sampling to underrepresented Romanian groups (e.g., Roma, Tatars, Saxons, Lipovans, Aromanians) and fathers in detention to test cultural/contextual mechanisms and inform tailored programs would broaden the understanding of fathers beyond current population.

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