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2734 17 Avenue SW,
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+15878858911
editorial-office@sciformat.ca

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LIVING WITH UNCERTAINTY: GENERALIZED ANXIETY DISORDER AND PSYCHOSOCIAL STRESSORS DURING THE COVID-19 PANDEMIC

Martyna Susek (Corresponding Author, Email: martyna.susek788@gmail.com)

Beskidzkie Centrum Onkologii Szpital Miejski im. Jana Pawła II w Bielsku-Białej, Bielsko-Biała, Silesia, Poland

ORCID ID: 0009-0006-7383-8121

Amadeusz Furmanek

Szpital Wojewódzki w Bielsku-Białej, Bielsko-Biała, Silesia, Poland

ORCID ID: 0009-0003-6839-2207

ABSTRACT

Background: The COVID-19 pandemic created an unprecedented global environment of uncertainty, acting as a profound catalyst for Generalized Anxiety Disorder (GAD). This crisis fundamentally shifted the psychological landscape, revealing that the primary driver of distress was not merely the biological threat of the virus, but a pervasive "certainty deficit" that overwhelmed both individual and systemic coping mechanisms.

Methods: This narrative review synthesizes seminal cognitive models of anxiety with contemporary empirical evidence to examine how pandemic-related psychosocial stressors and intolerance of uncertainty (IU) influenced GAD trajectories. A systematic search was conducted across major academic databases, integrating classical theoretical frameworks with peer-reviewed articles and institutional reports published between 2020 and 2026, with a specific focus on the Polish clinical landscape.

Results: The synthesis reveals that IU acted as the primary cognitive mediator of anxiety, frequently outweighing the direct fear of viral infection. Social isolation, economic instability, and digital overload, manifested as "doomscrolling," were identified as critical triggers for pathological worry. In Poland, young adults and healthcare workers exhibited the highest vulnerability, with symptoms persisting well into the post-pandemic era. This "long-tail" effect of anxiety is further complicated by secondary behavioral shifts, including documented increases in maladaptive coping strategies such as altered substance use patterns and social withdrawal.

Conclusions: Addressing the persistent "mental health debt" requires a paradigm shift in clinical practice. Future interventions must prioritize uncertainty tolerance training and the permanent integration of resilient, digitally-enabled health solutions to ensure a robust safety net for vulnerable populations in the face of future global crises.

KEYWORDS

Generalized Anxiety Disorder, COVID-19, Intolerance of Uncertainty, Psychosocial Stressors, Poland, Systematic Review

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1. Introduction

The COVID-19 pandemic has been identified by the World Health Organization (WHO, 2022) as a global psychological stressor of unprecedented scale, triggering a 25% increase in the prevalence of anxiety and depression worldwide. Among various mental health conditions, Generalized Anxiety Disorder (GAD) has emerged as a particularly significant concern due to its core diagnostic feature: persistent, uncontrollable worry about various aspects of daily life (American Psychiatric Association [APA], 2022). While the virus itself posed a direct threat to physical health, the pandemic's most profound impact on GAD patients was the creation of a "chronic state of global uncertainty." As noted by Carleton (2016), the inability to endure the absence of salient, crucial, or sufficient information—known as Intolerance of Uncertainty (IU)—serves as a fundamental vulnerability factor for GAD.

The global nature of this crisis led to a surge in psychological distress across diverse geographic regions. Initial data from Asia (Wang et al., 2020) and Europe (Vindegaard & Benros, 2020) suggested that the disruption of social and economic stability acted as a universal trigger for anxiety. From a cognitive perspective, the pandemic functioned as a catalyst for dysfunctional coping mechanisms. According to the models proposed by Borkovec et al. (1983) and Dugas and Robichaud (2007), individuals with GAD utilize worry as a cognitive avoidance strategy. During the COVID-19 crisis, this process was exacerbated by an overwhelming flow of digital information and social media exposure, which Gao et al. (2020) and Zhang et al. (2021) associated with increased odds of generalized anxiety symptoms and cognitive overload.

In the Polish context, the psychological burden followed a distinct and severe trajectory, influenced by specific socio-economic factors. National studies revealed that GAD symptoms were prevalent across various demographics, with young adults and healthcare workers exhibiting the highest levels of emotional distress (Gambin et al., 2021; Harasim-Piszczałowska & Kilańska, 2021). Predictors of this anxiety in Poland were not limited to the fear of infection but were deeply rooted in job insecurity and the perceived instability of the healthcare system (Malesza & Kaczmarek, 2021).

Crucially, emerging longitudinal data indicates that the psychological impact of the pandemic has a "long-tail" effect. As the immediate biological threat of the virus receded, the cognitive "sensitization" to uncertainty remained, with anxiety symptoms persisting well into the post-pandemic recovery period (Talarowska et al., 2023). This chronic stress has also led to secondary behavioral shifts, including documented changes in substance use as a maladaptive coping mechanism (Figat & Kielan, 2025; Schmidt et al., 2021). Consequently, understanding how these specific psychosocial stressors interact with the core mechanisms of GAD is essential for developing targeted clinical interventions and resilient digital health infrastructures (OECD, 2021) in the post-pandemic reality.

2. Methodology

The present study adopts a systematic narrative review approach to examine the relationship between Generalized Anxiety Disorder (GAD) and psychosocial stressors during the COVID-19 pandemic. This method allows for the integration of diverse empirical findings within established cognitive frameworks. To ensure a comprehensive and transparent analysis, the following methodological framework was applied:

2.1. Search Strategy and Data Sources

A systematic search was conducted across major electronic databases, including PubMed, ScienceDirect, and Google Scholar. The search strategy was twofold to ensure both theoretical depth and contemporary relevance:

1. Phase I (Foundational): A targeted search for seminal theoretical works published prior to 2020 to establish the conceptual foundations of Intolerance of Uncertainty (IU) and the cognitive models of GAD.

2. Phase II (Empirical): A systematic review of empirical research, meta-analyses, and institutional reports published between January 2020 and early 2026 to capture the pandemic's specific impact and its long-term trajectories.

Search terms included combinations of the following keywords: "*Generalized Anxiety Disorder*," "*COVID-19*," "*Intolerance of Uncertainty*," "*psychosocial stressors*," "*Poland*," "*Telehealth*," and "*mental health debt*."

2.2. Inclusion and Exclusion Criteria

To maintain high-level evidence integration, studies were selected based on the following criteria:

- **Inclusion Criteria:**

- Studies providing core diagnostic and cognitive frameworks for GAD (seminal literature).
- Empirical data regarding the escalation of anxiety symptoms during and after the SARS-CoV-2 outbreak.
- Research with a specific focus on adult populations within the Polish socio-clinical context, including healthcare workers and university students.
- Reports from international organizations (WHO, OECD, UN) regarding mental health policy and digital interventions.

- **Exclusion Criteria:**

- Studies focusing solely on other anxiety subtypes (e.g., specific phobias or OCD) without a direct link to the IU model.
- Non-peer-reviewed articles, editorials, or studies lacking a clear methodological description.

2.3. Data Synthesis

The analysis focused on mapping the transition from acute pandemic-related distress to chronic GAD symptoms, evaluating the role of Intolerance of Uncertainty as a core mediator, and identifying systemic implications for post-pandemic mental health care.

3. Results

3.1. The Role of Intolerance of Uncertainty (IU) as a Core Mediator

The pandemic environment functioned as a "global laboratory" for the study of Generalized Anxiety Disorder, specifically highlighting the cognitive mechanisms that sustain pathological worry. The synthesis of gathered evidence indicates that the psychological impact of COVID-19 was not uniform but was moderated by individual cognitive architectures, primarily through the lens of uncertainty.

3.1.1. IU and Pandemic-Related Worry

Empirical data provided by Cassin et al. (2020) confirm that Intolerance of Uncertainty (IU) served as a primary predictor of anxiety severity during the initial stages of the pandemic. In their analysis, IU accounted for a significant portion of the variance in GAD symptoms, surpassing even the direct fear of viral infection. This suggests that for individuals with GAD, the primary source of distress was not necessarily the biological threat of SARS-CoV-2, but rather the ambiguity surrounding its duration, transmission, and societal consequences.

This is further reinforced by Rettie and Daniels (2021), who demonstrated that IU acted as a critical mediator between pandemic-related stressors and mental health outcomes. Their findings suggest that the cognitive appraisal of uncertainty is often more damaging than the stressors themselves. To understand this in a broader context, Aknin et al. (2022) noted in their comprehensive review that while the initial surge of anxiety was universal, the persistence of these symptoms was heavily dependent on how individuals processed the "unpredictability" of the global recovery trajectory.

3.1.2. Cognitive Thresholds and Chronic Tension

The work of Carleton (2016), building on earlier diagnostic frameworks (Carleton et al., 2007), provides a vital framework for understanding how the pandemic shifted the cognitive thresholds of the general population. In GAD patients, the "threshold of ambiguity" is significantly lower; situations that are perceived as merely "unknown" by healthy individuals are interpreted as "threatening" by those with high IU. During COVID-19, the constant emergence of new viral variants and fluctuating government regulations maintained a state of "unresolved ambiguity."

This persistent state led to what Newman and Llera (2011) describe in their Contrast Avoidance Model as sustained negative affect. Individuals with GAD remain in a state of high physiological tension and chronic worry to avoid the sharp, painful emotional "contrast" of an unexpected negative event. In the context of Coronavirus, Freeston et al. (2020) proposed that this "uncertainty distress" became a chronic condition, where the inability to plan for the future led to a paralysis of coping mechanisms. This is consistent with the DSM-5-TR (American Psychiatric Association, 2022) criteria, which emphasize that the lack of control over worry is a hallmark of GAD, a trait that was hyper-activated by the lack of definitive scientific or political answers during the crisis.

3.2. Impact of Specific Psychosocial Stressors on GAD Symptoms

The transition from cognitive vulnerability to clinical symptoms was catalyzed by specific psychosocial stressors, which acted as triggers for the GAD worry process.

3.2.1. Social Isolation and Disruption of Emotional Regulation

Social distancing measures, while necessary for public health, removed the primary external mechanisms for anxiety regulation. Brooks et al. (2020), in their rapid review of quarantine impacts, highlighted that the sudden loss of routine and social safety nets led to a surge in emotional instability. For GAD sufferers, social interaction often serves as a "reality check" that de-escalates catastrophic thinking. Without this feedback loop, individuals became trapped in internal ruminative cycles.

Complementary research by Killgore et al. (2020) identified loneliness as a "signature concern" of the pandemic era. Their findings suggest that social isolation does not just cause sadness; it actively feeds the GAD worry process by providing more "cognitive space" for ruminating on potential threats. This is further supported by longitudinal data from Bu et al. (2020), which demonstrated that the trajectory of loneliness during strict lockdowns was a significant predictor of worsening GAD symptoms. The lack of interpersonal reassurance forced patients to rely on internal (and often dysfunctional) coping strategies. As noted by Venkatesh and Edirappuli (2020), while social distancing was a biological shield, it created a psychological vacuum that increased the prevalence of "health anxiety" and social withdrawal.

3.2.2. The Digital Double-Edged Sword: Information Overload

A critical stressor often overlooked in early clinical models is the role of digital media. Exposure to social media during the outbreak was significantly associated with a higher prevalence of GAD symptoms (Gao et al., 2020). The phenomenon of "doomscrolling" acted as a maladaptive reassurance-seeking behavior. Research by Zhang et al. (2021) found that while information quality could mitigate some fears, the sheer "media richness" and volume of conflicting data often overwhelmed the individual's cognitive resources. This led to negative coping mechanisms, where the attempt to reduce uncertainty through constant information gathering paradoxically intensified the underlying anxiety.

3.2.3. Economic Instability and Job Insecurity

While GAD is often discussed in terms of cognitive distortions, the pandemic introduced legitimate, objective threats to existential security. Economic hardship emerged as a primary driver of psychological distress, transforming financial uncertainty into a chronic stressor. According to Witteveen and Velthorst (2020), the sudden disruption of the labor market and the resulting job insecurity were significantly associated with an escalation of GAD symptoms. This "economic anxiety" is not merely a reaction to poverty but a manifestation of the fear of future catastrophic outcomes.

For individuals with high intolerance of uncertainty, the lack of clarity regarding government subsidies and long-term economic stability served as a catalyst for somatic anxiety symptoms. Alcover et al. (2022) argue that financial threat acts as a persistent cognitive load, exhausting the individual's self-regulatory resources and making it increasingly difficult to suppress the GAD worry process. In this context, the pandemic's economic impact functioned as a "secondary epidemic" of mental ill-health, where the unpredictability of the market mirrored the unpredictability of the virus, a sentiment echoed in the OECD (2020) report on the rising social and economic costs of mental ill-health.

3.3. Analysis of the Polish Clinical Landscape

The transition from global trends to the specific socio-clinical situation in Poland reveals a population deeply affected by the systemic changes of the pandemic era.

3.3.1. Prevalence Rates and Symptom Severity in the Polish Population

Quantitative data indicates a dramatic shift in the Polish mental health baseline. In one of the most comprehensive studies, Gambin et al. (2021) found that GAD symptoms were significantly elevated across all age groups, with over 25% of respondents meeting clinical thresholds. This was not limited to simple anxiety; Dragan et al. (2021) identified that GAD often co-occurred with adjustment disorders and traumatic stress during the early pandemic phases, suggesting a multi-layered psychological impact.

The data highlights a "vulnerability peak" among young adults. Talarowska et al. (2020) emphasized that these rates were influenced by a specific cultural context—namely, a lower baseline of trust in public health institutions compared to Western Europe, which amplified the perceived "uncontrollability" of the crisis. Interestingly, Babicki et al. (2021) noted that for some, the pandemic also triggered or exacerbated symptoms of social anxiety, as the sudden shift to digital-only interactions altered the "safety signals" of traditional social environments.

3.3.2. Vulnerability Among Specific Groups: Students vs. Healthcare Workers

The impact on GAD symptoms demonstrated significant demographic variance. According to Debowska et al. (2020) and Wieczorek et al. (2021), university students emerged as one of the most burdened groups due to "double uncertainty": immediate educational disruption and long-term labor market instability. This was not a transient effect; follow-up studies by Talarowska et al. (2023) showed that even two years after the initial outbreak, Polish students continued to report significantly high levels of anxiety and a diminished sense of future security.

In contrast, the anxiety of healthcare workers was rooted in occupational trauma. Harasim-Piszczałowska and Kilańska (2021) found that Polish nurses reported severe generalized anxiety, exacerbated by systemic stressors like PPE shortages and an overwhelming influx of patients. For this group, uncertainty was not just a cognitive state but a daily life-threatening reality. Furthermore, research by Figat and Kielan (2025) indicates that these prolonged GAD symptoms in the Polish population have had secondary effects, such as a documented shift in alcohol consumption patterns as a dysfunctional coping mechanism for chronic pandemic-related stress.

3.3.3. Predictors of Anxiety in Poland: Institutional and Systemic Factors

Beyond individual vulnerability, specific systemic predictors maintained GAD symptoms. Malesza and Kaczmarek (2021) identified that the strongest predictor of anxiety was the perceived inability of the national healthcare system to manage the crisis. This "institutional distrust" served as a constant catalyst for catastrophic thinking.

The "uncontrollability" of government-imposed lockdowns and lack of transparent communication were significant stressors. As Talarowska et al. (2020) noted, for many Polish citizens, the pandemic didn't just trigger an internal disorder but highlighted a realistic "lack of a safety net." In this environment, the GAD cognitive strategy of "worrying" was often perceived as a necessary tool for survival. This systemic anxiety is reflected in broader European assessments, such as the OECD (2021) reports, which place Poland among the countries needing urgent structural benchmarks to manage the "mental health debt" incurred during the 2020–2026 period.

3.4. Longitudinal Perspectives and Recovery Trajectories

The transition from the acute pandemic phase to the "post-pandemic" reality has revealed that the psychological impact on GAD symptoms is not transient. Longitudinal evidence suggests a "long-tail" effect of anxiety, where the cognitive "sensitization" to uncertainty persists even after the removal of biological threats.

3.4.1. Persistence of GAD Symptoms and "Mental Health Debt"

Research conducted by Talarowska et al. (2023) in a 2-year follow-up study of the Polish population indicates that generalized anxiety symptoms did not return to pre-2020 levels for a significant portion of the population. This "stuck" anxiety is not unique to Poland; early international comparisons, such as those by Hyland et al. (2020), predicted that the initial spike in GAD would evolve into chronic distress if not met with immediate systemic intervention.

The chronic exposure to uncertainty appears to have altered the baseline of emotional regulation. This is evidenced by the shift in maladaptive coping mechanisms. As noted by Schmidt et al. (2021) and later confirmed in the Polish context by Figat and Kielan (2025), the pandemic led to a documented increase in substance-related disorders, where alcohol and other drugs were used to "medicate" the persistent GAD worry process. This transition from acute anxiety to chronic behavioral changes represents a significant "mental health debt" that national health systems are currently struggling to repay (World Health Organization, 2022).

3.4.2. Telehealth and Digital Interventions as Systemic Stabilizers

A critical development in the recovery trajectory was the rapid adoption of digital mental health services. According to the OECD (2021) report, the pandemic accelerated the integration of Telehealth into national health systems by nearly a decade. For patients with GAD, digital interventions offered a dual benefit:

- **Accessibility:** Overcoming geographical and "quarantine-induced" barriers to care.
- **Cognitive Alignment:** Providing a structured, "certain" environment for therapy during times of external chaos.

In Poland, the shift toward remote psychiatric and psychological consultations was instrumental in managing the surge of GAD cases. However, as highlighted in the meta-analysis by Amanvermez et al. (2023), while digital stress management tools are highly effective for university students and young adults, their long-term success depends on the quality of the therapeutic alliance and the "media richness" of the platform (Zhang

et al., 2021). The World Health Organization (2022) now identifies the "digitalization of therapy" as a permanent pillar of mental health resilience, offering a scalable infrastructure to mitigate the impact of future global crises and provide continuous support for those whose "threshold of uncertainty" was permanently lowered by the events of 2020–2026.

4. Discussion

The synthesis of evidence presented in this review confirms that Generalized Anxiety Disorder (GAD) during the COVID-19 pandemic cannot be understood as a simple reaction to a biological threat. Instead, it was the result of a complex interplay between a global "certainty deficit" and specific psychosocial stressors, which transformed a temporary crisis into a longitudinal mental health challenge (Vindegaard & Benros, 2020; Pfefferbaum & North, 2020).

4.1. The Primacy of Intolerance of Uncertainty

A central finding of this analysis is that intolerance of uncertainty (IU) was the primary driver of GAD symptoms, often outweighing the actual risk of infection (Cassin et al., 2020). This aligns with the cognitive models of Dugas and Robichaud (2007) and Carleton (2016), but adds a new dimension: the pandemic made uncertainty "inescapable." Unlike traditional clinical GAD, where uncertainty is often perceived in specific life domains (e.g., health, work), the pandemic created a generalized uncertainty environment. This suggests that clinical interventions in the post-pandemic era must shift from "worry management" to "uncertainty tolerance training" (Rettie & Daniels, 2021; Freeston et al., 2020).

4.2. The Digital Double-Edged Sword

The results regarding digital overload point to a significant systemic paradox. While technology (Telehealth) became a lifeline for mental health access, social media became a primary source of "anxiety fuel" (Gao et al., 2020). Research by Zhang et al. (2021) found that "media richness" often overwhelmed cognitive resources, leading to negative coping strategies. This review suggests that "digital hygiene" should be considered a formal clinical recommendation for GAD patients. The Polish context further highlights that institutional transparency is the only effective "antidote" to the anxiety-inducing nature of social media infodemics (Talarowska et al., 2020). As noted by Amanvermez et al. (2023), the success of digital stress management tools depends heavily on their systemic integration and the quality of the therapeutic alliance in a virtual setting.

4.3. Vulnerability and Systemic Gaps in Poland

The data concerning the Polish population reveals a critical gap in systemic resilience. The high levels of GAD among young adults (Gambin et al., 2021; Debowska et al., 2020) and healthcare workers (Harasim-Piszczatowska & Kilańska, 2021) indicate that the "safety net" was not only economic but also psychological. The fact that anxiety remained elevated even as the virus receded (Talarowska et al., 2023) proves that we are dealing with a "mental health debt" that will require long-term systemic management. This debt is further evidenced by secondary behavioral shifts, such as changes in alcohol use as a maladaptive coping strategy (Figat & Kielan, 2025; Schmidt et al., 2021).

4.4. Implications for Healthcare Systems

The findings of this review have direct implications for the future of healthcare. According to the OECD (2021) and WHO (2022), the pandemic has set a "new benchmark" for mental health systems, necessitating a transition toward proactive, digitally-enabled monitoring. For the Polish demographic, this means addressing the "institutional distrust" identified by Malesza and Kaczmarek (2021) and providing targeted support for the most vulnerable groups identified in this study.

4.5. Limitations of the Current Review

While this review provides a comprehensive synthesis, it is limited by the heterogeneity of the studies analyzed. Differences in GAD measurement scales (e.g., GAD-7 vs. clinical interviews) and the rapid evolution of the pandemic itself make direct longitudinal comparisons difficult. Furthermore, while the Polish context is extensively covered, more research is needed on the "Long-COVID" psychological effects and their biological-psychological intersection in the Polish demographic to fully understand the long-term clinical trajectory of anxiety (Aknin et al., 2022).

5. Conclusion

The analysis of Generalized Anxiety Disorder (GAD) in the context of the COVID-19 pandemic leads to several critical conclusions:

1. **Uncertainty as the Primary Pathogen:** The pandemic demonstrated that for GAD patients, the cognitive distress caused by Intolerance of Uncertainty (IU) was more debilitating than the direct fear of the biological threat.

2. **The Role of Psychosocial Stressors:** Social isolation and digital information overload (doomscrolling) acted as significant catalysts, maintaining pathological worry by removing external emotional regulation mechanisms and flooding the cognitive system with ambiguous stimuli.

3. **Specific Vulnerability in Poland:** Young adults and healthcare workers in Poland showed exceptional levels of GAD symptoms, driven by a lack of institutional trust and a perceived absence of a systemic safety net.

4. **Systemic Transformation:** The rapid adoption of Telehealth in Poland has created a new, resilient infrastructure for mental health care, but long-term recovery will require a shift toward clinical models that explicitly target uncertainty tolerance.

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