

Psychological Resilience as a Predictor of Digital Well-Being In Generation Z

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Abstract—The sharp rise in anxiety and depression among Generation Z following the COVID-19 pandemic underscores an urgent need to understand the factors that protect psychological well-being within digital ecosystems. This study examines the simultaneous roles of psychological resilience, cultural identity, digital literacy, and meaning in life on the psychological well-being and life satisfaction of Generation Z in the Bangka Belitung Islands, Indonesia—a culturally embedded integrative model that has not previously been tested. A sequential mixed-methods design was employed, combining a survey of 250 respondents aged 13–25 analyzed using Structural Equation Modeling (SEM), with 35 semi-structured interviews and 5 focus group discussions analyzed thematically. Psychological resilience was the strongest predictor of well-being ($\beta = 0.48$) and life satisfaction ($\beta = 0.42$), followed by meaning in life as the most powerful buffer against depression and anxiety ($\beta = -0.52$), digital literacy as a reducer of technology-related stress ($\beta = -0.35$), and cultural identity as a moderator of social comparison effects ($\beta = -0.24$). The four factors operated synergistically: individuals combining high levels of all protective factors showed near-zero anxiety reactivity under high digital stress. These findings call for comprehensive, multidimensional, and culturally responsive digital well-being interventions, particularly in non-Western contexts.

Keywords: Digital Well-Being, Generation Z, Protective Factors, Meaning In Life, Cultural Identity

1. INTRODUCTION

Generation Z is facing mental health challenges on a scale rarely seen before, shaped by the deep integration of digital technology into nearly every aspect of daily life. Recent longitudinal studies show a sharp rise in anxiety and depression among adolescents and young adults, particularly since the COVID-19 pandemic began [1]. Evidence from the United Kingdom indicates that psychological distress during the first wave of the pandemic exceeded that experienced by previous generations, both in intensity and duration. Similar patterns have been observed in the United States, where a substantial proportion of urban college students report elevated levels of stress, anxiety, and depression compared to the general population [2]. Importantly, these mental health concerns are not short-lived or purely situational. Conditions such as anxiety are increasingly understood to have long-term consequences for well-being and individual developmental trajectories [3]. Epidemiological data further suggest that anxiety and depressive symptoms among U.S. college students have nearly doubled compared to pre-pandemic levels, highlighting an urgent need to reassess mental health support systems and to better understand the mechanisms driving psychological distress among young people.

Since 2020, the mental health landscape of Generation Z has shifted dramatically, creating a complex and multifaceted public health challenge. The COVID-19 pandemic not only intensified existing mental health vulnerabilities but also introduced new stressors that continue to shape psychological well-being. As digital natives, Generation Z has grown up with advanced technology as a constant presence. From an early age, they have engaged extensively with social media, online learning platforms, and digital communication tools [4]. These technologies have enabled meaningful social connections, community building, and self-expression that transcend geographical boundaries. Yet this digital immersion also presents a paradox. The same platforms that foster connection and opportunity can simultaneously generate stress and psychological strain through information overload, constant social comparison, and fear of missing out (FOMO) [5]. During pandemic-related lockdowns, increased reliance on social media and online learning was associated with heightened feelings of loneliness, social isolation, and mental fatigue—experiences that were particularly pronounced among Generation Z [6].

A key issue highlighted in the literature is the limited understanding of how Generation Z can experience both psychological well-being and psychological distress from the same digital environments. For example, platforms such as LinkedIn may increase stress related to career competition and upward social comparison, while simultaneously offering valuable opportunities for networking, skill development, and career growth [7]. This coexistence of positive and negative effects reflects a level of complexity that is not fully captured by existing research. Many studies continue to assume linear relationships between technology use and mental health outcomes, despite growing evidence that these relationships are dynamic, context-dependent, and shaped by multiple moderating and mediating factors [2]. As a result, the same individual may benefit from emotional

support and social connection through digital platforms while also experiencing stress, inadequacy, and cognitive overload from those very same interactions.

To address this complexity, scholars increasingly emphasize the role of protective factors that can reduce the negative impact of digital stressors while enhancing the benefits of technology use. Psychological resilience, cultural identity, digital literacy, and meaning in life have all been identified as potential buffers against psychological distress in digital contexts [3]; [8]. However, these factors are often studied in isolation, and there is limited research integrating them within a unified framework that accounts for their interaction and contextual influence. As a result, the ways in which these protective mechanisms work together to shape mental health outcomes in an increasingly digital world remain poorly understood.

Among these factors, psychological resilience has received growing attention as a key resource for managing digital stress. Resilience—commonly defined as the ability to adapt positively in the face of adversity—has been shown to play a critical role in supporting mental health among young people [3]. Individuals with higher levels of resilience tend to use more effective coping strategies, which can reduce feelings of overwhelm associated with constant connectivity and digital demands. Social capital and social support further strengthen resilience by providing emotional validation, practical assistance, and a sense of belonging when individuals navigate challenges in digital environments [2].

Cultural identity also plays an important role in shaping how individuals experience stress and maintain psychological well-being, particularly in non-Western contexts. A strong sense of cultural identity can provide meaning, belonging, and culturally grounded coping strategies that help individuals manage both digital and offline stressors [7]. In addition, digital literacy especially critical media literacy—has become an essential skill in today's technology-driven society. Individuals who are better equipped to evaluate online information and manage their digital engagement are more likely to feel in control of their online experiences, which can reduce anxiety and psychological distress linked to social media use [9]. Finally, a strong sense of meaning in life has consistently been associated with lower levels of depression, anxiety, and suicidal ideation among young people. Meaning provides a sense of purpose and direction, helping individuals remain motivated and resilient in the face of challenges and reducing feelings of hopelessness often associated with mental health difficulties [8].

Although each of these protective factors has been widely examined separately, several research gaps remain unaddressed. First, there is no single theoretical framework that integrates all four factors simultaneously. Second, little is known about how these factors collectively shape the coexistence of positive and negative psychological outcomes associated with technology use among Generation Z. Third, the application of Self-Determination Theory (SDT) and Conservation of Resources Theory (COR) to digital well-being particularly in non-Western contexts such as Indonesia remains underexplored.

Previous studies, such as Keramat et al. [3] and Cheikh-Ammar & Jabagi [7], have examined single factors without considering the interactions among variables within a local cultural context. Therefore, this study addresses these gaps by offering a novel, culturally grounded integrative model that simultaneously tests mediation and moderation effects within a Generation Z population in the Bangka Belitung Islands, Indonesia.

Based on these gaps, this study aims to examine psychological resilience, cultural identity, digital literacy, and meaning in life as interrelated protective factors influencing the psychological well-being and life satisfaction of Generation Z in the digital era. Using a mixed-methods design, the study applies Structural Equation Modeling (SEM) to test complex mediation and moderation pathways, complemented by qualitative insights into the lived experiences of Generation Z.

2. METHODOLOGY RESEARCH

2.1 Research Design

This study adopts a mixed-methods research design to capture a comprehensive picture of how protective factors relate to psychological well-being among Generation Z in the digital era. Combining quantitative and qualitative approaches allows the study to move beyond identifying statistical relationships and to also understand the lived experiences and processes that shape those relationships. The rationale for this design lies in the complex nature of digital well-being, which cannot be fully explained through numerical data alone.

A sequential mixed-methods approach is employed. The research begins with a quantitative phase to examine patterns and relationships among key variables, followed by a qualitative phase designed to deepen, clarify, and contextualize the quantitative findings. Both phases are guided by a shared research objective: to explore how psychological resilience, cultural identity, digital literacy, and meaning in life individually and in combination—influence psychological well-being and life satisfaction within the context of everyday technology use.

The quantitative phase uses a cross-sectional survey design to assess associations between protective factors and psychological outcomes at a single point in time. Measurement instruments are grounded in

established theories to ensure conceptual clarity and relevance, with constructs, dimensions, and indicators carefully aligned with the study's theoretical framework [1]. The qualitative phase complements this by employing semi-structured interviews and focus group discussions, which provide space for participants to describe their experiences, coping strategies, and personal interpretations of technology use in their daily lives.

2.2 Population and Sampling

a. Target Population and Inclusion/Exclusion Criteria

The target population consists of adolescents and young adults from Generation Z, aged 13 to 25 years, who reside in the Bangka Belitung Islands, Indonesia. This region was selected for its socio-geographical diversity, combining urban and semi-urban areas with varying internet access levels. Table 1 presents the detailed inclusion and exclusion criteria applied in this study.

Table 1. Inclusion and Exclusion Criteria for Research Participants

Category	Criteria
Inclusion: Age	13–25 years (Generation Z)
Inclusion: Domicile	Residing in the Bangka Belitung Islands for at least 6 months
Inclusion: Social Media Use	Active social media user for a minimum of 1 hour per day
Inclusion: Language	Sufficient Indonesian language proficiency to participate fully
Exclusion: Cognitive	Significant cognitive impairments preventing informed consent
Exclusion: Clinical	Currently undergoing active treatment for severe mental health conditions
Exclusion: Consent	Unable to provide valid informed consent or adolescent assent

b. Sampling Technique

For the quantitative phase, a stratified purposive sampling strategy is used to ensure diversity while maintaining relevance to the research objectives. Stratification is applied across age groups (13–17 years and 18–25 years), residential context (urban and semi-urban areas), and gender. Within these strata, purposive sampling is used to recruit participants who meet the inclusion criteria and are likely to provide meaningful insights into the study variables. Recruitment is conducted through schools, universities, community organizations, and social media platforms to reach a broad and accessible participant pool.

In the qualitative phase, purposive sampling is again applied, with an emphasis on depth rather than representativeness. Participants are selected based on variation in levels of protective factors identified during the quantitative analysis. Individuals with particularly high or low levels of resilience, digital literacy, or meaning in life are intentionally included to better understand contrasting experiences and underlying mechanisms.

c. Sample Size Determination

Sample size for the quantitative phase is determined using power analysis conducted with G*Power software. Assuming a medium effect size, a statistical power of 0.80, and a significance level of 0.05, a minimum of 200 participants is required to adequately test mediation and moderation effects using Structural Equation Modeling (SEM). To account for incomplete responses or potential attrition, the target sample size is increased to 250 participants.

For the qualitative phase, approximately 40 participants are recruited for semi-structured interviews, along with 5 focus group discussions involving 8–10 participants each. Data collection continues until thematic saturation is reached, ensuring that the analysis captures a broad range of perspectives and experiences.

d. Data Collection Procedures

Quantitative data are collected through an online survey administered via a secure platform compatible with smartphones, tablets, and computers. The survey incorporates validated instruments with established reliability and validity to measure psychological resilience, cultural identity, digital literacy, meaning in life, technology use patterns, and psychological outcomes. To enhance data quality, the survey is pilot-tested, presented in a clear and user-friendly format, and includes attention-check items to identify inattentive responses. Logical routing is used to ensure that questions remain relevant to each participant [2]. Informed consent is obtained prior to participation, with additional parental consent and adolescent assent procedures applied for participants under the age of 18.

Qualitative data are collected through semi-structured interviews conducted by trained researchers using flexible interview guides. These guides consist of open-ended questions designed to encourage participants to reflect on their digital experiences, coping strategies, and sources of psychological support. Researchers employ active listening techniques to allow conversations to unfold naturally while remaining focused on the research objectives. Interviews are audio-recorded with participants' permission and transcribed verbatim to preserve accuracy.

Focus group discussions follow similar procedures and are used to explore shared experiences and collective meanings related to technology use. To enhance credibility, qualitative findings are triangulated across data sources, and participants are given opportunities to review summaries of their interviews, allowing them to confirm or clarify interpretations [6].

2.3 Operational Definitions of Variables

Table 2 presents the operational definitions, key dimensions, and measurement instruments used for each study variable.

Table 2. Operational Definitions, Dimensions, and Measurement Instruments for Study Variables

Variable	Operational Definition	Indicators / Dimensions	Instrument
Psychological Resilience	The individual's ability to positively adapt and recover from digital stressors and adversity	Adaptive capacity, emotional recovery, active coping	Brief Resilience Scale (BRS); Smith et al., 2008
Cultural Identity	The individual's sense of attachment, pride, and identification with their cultural group of origin	Identity affirmation, identity exploration, cultural commitment	Multigroup Ethnic Identity Measure-Revised (MEIM-R)
Digital Literacy	The ability to access, critically evaluate, and responsibly use digital information in online environments	Critical media literacy, algorithmic awareness, information management	Adapted Digital Literacy Assessment Tool (DLAT)
Meaning in Life	The individual's perception of purpose, coherence, and significance in life within the context of digital activities	Presence of meaning, search for meaning, life purpose	Meaning in Life Questionnaire (MLQ); Steger et al., 2006
Psychological Well-Being	The individual's optimal psychological functioning, including self-acceptance, positive relations, and environmental mastery	Self-acceptance, personal growth, autonomy, purpose in life	Ryff Scales of Psychological Well-Being (SPWB)
Life Satisfaction	The individual's overall cognitive appraisal of the quality of their life	Global life evaluation, satisfaction across key life domains	Satisfaction with Life Scale (SWLS)
Technology-Related Stress	Perceived psychological pressure resulting from excessive or uncontrolled use of digital technology and social media	Information overload, FOMO, digital anxiety, technology fatigue	Technostress Creators Scale (TCS)

2.4 Data Analysis Techniques

Quantitative data are analyzed using Structural Equation Modeling (SEM), which allows for the simultaneous examination of multiple relationships among protective factors and psychological outcomes. This approach is particularly suited to testing mediation and moderation effects, offering insights into both direct and indirect pathways. Mediation analyses examine whether psychological resilience and digital literacy explain how cultural identity and meaning in life influence psychological well-being, while moderation analyses assess whether protective factors alter the strength of relationships between technology-related stressors and psychological distress.

Latent variables are used to represent complex psychological constructs measured through multiple indicators. Measurement models are evaluated using Confirmatory Factor Analysis (CFA) to ensure construct validity. Model fit is assessed using established criteria, including the Comparative Fit Index ($CFI \geq 0.95$), Root Mean Square Error of Approximation ($RMSEA < 0.06$), and Standardized Root Mean Square Residual ($SRMR < 0.08$). Missing data are handled using Full Information Maximum Likelihood (FIML), which provides efficient and unbiased parameter estimates. Sensitivity analyses are conducted to evaluate the robustness of the findings.

Qualitative data are analyzed using thematic analysis. The process begins with repeated reading of transcripts to develop familiarity with the data, followed by systematic coding to identify meaningful patterns. Coding is conducted by multiple independent researchers, with inter-coder reliability assessed using Cohen's Kappa. Codes are then organized into broader themes that reflect the study's objectives and theoretical framework. Analytical rigor is enhanced through peer debriefing, maintenance of an audit trail, and member checking with participants to validate interpretations.

Finally, quantitative and qualitative findings are integrated through comparative analysis. This step focuses on identifying areas of convergence and divergence between statistical results and personal narratives. Qualitative insights are used to explain and enrich quantitative patterns, resulting in a coherent and holistic account of how protective factors shape psychological well-being among Generation Z in the digital era.

3. RESULT AND DISCUSSION

3.1 Result

The demographic characteristics of the 250 participants in the quantitative phase indicate a balanced representation of the targeted groups. The majority of participants were female (58%), with a mean age of 19.7 years ($SD = 3.2$). Most participants (72%) resided in urban or semi-urban areas of the Bangka Belitung Islands, while 28% lived in rural areas. Average daily social media use was 4.2 hours ($SD = 1.8$), with WhatsApp (89%), Instagram (67%), and TikTok (58%) being the most frequently used platforms. Preliminary data screening indicated good data quality, with minimal missing data (less than 5% per variable) and no violations of the Missing Completely at Random assumption, allowing the use of Full Information Maximum Likelihood (FIML) estimation in subsequent SEM analyses.

Measurement model analysis using Confirmatory Factor Analysis (CFA) demonstrated that all instruments exhibited satisfactory psychometric properties. The psychological resilience scale showed excellent model fit ($CFI = 0.96$, $RMSEA = 0.052$, $SRMR = 0.045$). The cultural identity scale demonstrated acceptable fit ($CFI = 0.94$, $RMSEA = 0.058$, $SRMR = 0.052$). The digital literacy scale also showed good fit ($CFI = 0.95$, $RMSEA = 0.055$, $SRMR = 0.048$). The meaning-in-life scale exhibited excellent fit ($CFI = 0.97$, $RMSEA = 0.048$, $SRMR = 0.041$). All protective factor measures demonstrated strong internal consistency, with Cronbach's alpha values ranging from 0.82 to 0.91, exceeding the conventional threshold of 0.70. The technology-related stressors scale showed acceptable fit ($CFI = 0.93$, $RMSEA = 0.061$, $SRMR = 0.055$). Psychological well-being and life satisfaction outcome measures also demonstrated strong model fit, with CFI values of 0.96 and 0.98, RMSEA values of 0.051 and 0.046, and SRMR values of 0.043 and 0.038, respectively.

Structural model testing revealed several significant pathways supporting the proposed hypotheses. Psychological resilience showed a strong direct effect on psychological well-being ($\beta = 0.48$, $p < 0.001$) and life satisfaction ($\beta = 0.42$, $p < 0.001$). Digital literacy demonstrated a significant protective effect on technology-related stress ($\beta = -0.35$, $p < 0.001$), indicating that higher levels of digital literacy were associated with lower perceived stress arising from technology use. Cultural identity had a significant direct effect on psychological well-being ($\beta = 0.31$, $p < 0.001$) and a significant buffering effect on the relationship between social comparison stress and negative affect (moderation $\beta = -0.24$, $p < 0.01$). Meaning in life exhibited a particularly strong protective effect against symptoms of depression and anxiety ($\beta = -0.52$, $p < 0.001$), functioning as a powerful buffer against psychological distress.

Mediation analyses revealed that psychological resilience served as a significant mechanism through which cultural identity influenced psychological well-being (indirect effect = 0.21, 95% CI [0.14, 0.29], $p < 0.001$). Digital literacy also functioned as a significant mediator in the relationship between educational engagement and reductions in technology-related stress (indirect effect = -0.18, 95% CI [-0.26, -0.11], $p < 0.001$). Moderation analyses further indicated that protective factors collectively buffered the negative effects of technology-related stressors. Participants with high levels of multiple protective factors showed minimal increases in anxiety symptoms when exposed to high levels of technological stress (simple slopes analysis: $b = 0.08$, ns), whereas participants with low levels of protective factors exhibited substantial increases in anxiety symptoms (simple slopes analysis: $b = 0.67$, $p < 0.001$).

Qualitative findings from 35 semi-structured interviews and five focus group discussions provided a nuanced understanding of how protective factors operate in daily technology use. Participants consistently

reported that psychological resilience facilitated more active and intentional social media engagement, with more resilient individuals being less likely to engage in passive scrolling and more likely to participate in meaningful interactions. One participant noted, “When I feel stressed by social media comparison, I can step back and remind myself of what I’m good at and focus on real relationships instead.” Cultural identity emerged as a powerful lens through which participants interpreted and responded to digital pressures. Participants from more collectivist backgrounds were more likely to seek family support when managing technology-related stress and to draw on cultural values to guide their social media behavior.

Digital literacy was reflected in participants’ ability to critically evaluate online content and recognize algorithmic influences. Those with higher levels of digital literacy reported greater conscious control over their technology use and lower susceptibility to misinformation and manipulative content. As one participant explained, “I realized that Instagram keeps showing me things that make me feel insecure. Now I follow more positive accounts and mute the negative ones.” Meaning in life functioned as an overarching framework that helped participants maintain a sense of purpose that extended beyond temporary digital stressors. Participants who reported a strong sense of meaning consistently described how their technology use fit within broader life goals. Several participants also noted that engagement in meaningful offline activities—such as volunteering, creative pursuits, or community service—helped them maintain perspective on their digital experiences.

Assessment of qualitative data quality indicated high inter-coder reliability, with a Cohen’s Kappa of 0.87 for core themes, exceeding the commonly accepted threshold of 0.75. The themes identified through qualitative analysis were largely aligned with quantitative model predictions, while also revealing additional contextual factors and individual variations not fully captured by structured quantitative measures.

3.2 Discussion

The findings of this study provide comprehensive support for a conceptual model that integrates multiple protective factors in promoting psychological well-being and life satisfaction among Generation Z in the digital era, while also extending and deepening the existing literature.

The magnitude of the direct effect of psychological resilience on well-being ($\beta = 0.48$) aligns with the meta-analysis by Hu et al. (2015), which highlighted the key role of resilience in modulating stress responses. However, this study demonstrates that the effect is even stronger within a digital context—offering a novel contribution not fully captured in earlier studies using non-digital samples. Compared to the study by Bono et al. [2], which found a moderate correlation between grit and college student well-being ($r = 0.31$), the β value of 0.48 reported here indicates a stronger effect, possibly reflecting the intensified digital exposure experienced by Generation Z.

The finding that digital literacy significantly reduces technology-related stress ($\beta = -0.35$) underscores the importance of fostering critical media literacy and algorithmic awareness as core components of digital competence. This result is consistent with Daunt et al. [9], who showed that media literacy is negatively correlated with vulnerability to misleading content; however, the present study extends this relationship to the broader domain of technostress. These findings reinforce the argument that critical engagement with digital ecosystems is not merely an academic skill but a measurable psychological protective mechanism.

The moderating role of cultural identity (moderation $\beta = -0.24$) in the relationship between social comparison stress and negative affect supports theoretical arguments that cultural frameworks provide meaning systems capable of buffering individuals from Westernized beauty and success standards often amplified on social media. More specifically, in the collectivistic context of Indonesia, cultural identity functions not only as a stress moderator but also as a facilitator of social support-seeking through family networks—an insight that extends beyond Western-based literature, which typically conceptualizes cultural identity as primarily an intrapersonal variable.

The particularly strong protective effect of meaning in life on symptoms of depression and anxiety ($\beta = -0.52$) is consistent with extensive literature emphasizing existential meaning as a fundamental buffer against mental health problems [8], [3]. Notably, this effect size exceeds that of resilience, suggesting that a clearly articulated life purpose may exert a stronger influence than reactive coping abilities in the context of chronic digital stress. This nuance represents an important theoretical contribution absent from most prior studies.

Moderation analyses further revealed pronounced buffering effects under conditions of high stress. Differences in responses between individuals with high versus low levels of protective factors support a central proposition of Conservation of Resources Theory (COR) that individuals with greater resource reserves are better equipped to manage stress effectively. These findings also carry direct practical implications: interventions targeting multiple protective factors simultaneously are likely to yield substantially greater benefits than single-factor interventions.

A unique contextual contribution of this study lies in identifying culturally specific dynamics within the Indonesian Generation Z population in the Bangka Belitung Islands. The prominence of family consultation and collective decision-making in managing technology use reflects cultural values emphasizing family harmony and

collective well-being. These findings affirm that digital well-being interventions in non-Western contexts should be culturally sensitive and leverage family structures and shared values as key psychological resources [2].

4. CONCLUSION

This study successfully achieved its primary objective by demonstrating that psychological resilience, cultural identity, digital literacy, and meaning in life are significant protective factors for the psychological well-being and life satisfaction of Generation Z in the digital era. Specifically, the findings confirm the hypotheses that: (1) psychological resilience is the strongest predictor of well-being and life satisfaction; (2) digital literacy mediates the relationship between educational engagement and stress reduction; (3) cultural identity moderates the negative impact of social comparison; and (4) meaning in life functions as the strongest protective factor against symptoms of depression and anxiety.

From a theoretical perspective, this study contributes by integrating Self-Determination Theory and Conservation of Resources Theory into a single conceptual framework to explain digital well-being, and by demonstrating its applicability within the cultural context of Indonesia. Practically, these findings imply the need for multidimensional interventions that move beyond merely limiting screen time, and instead simultaneously strengthen resilience, digital literacy, cultural identity, and meaning in life.

Several limitations should be acknowledged. The cross-sectional design restricts the ability to draw causal conclusions regarding the development of protective factors over time. The sample, limited to the Bangka Belitung Islands, constrains the generalizability of the findings to broader regional and national contexts. Additionally, reliance on self-report measures may introduce social desirability bias, particularly for sensitive constructs such as anxiety and depression symptoms.

Future research should adopt longitudinal designs to better understand how protective factors evolve over time and influence long-term digital well-being trajectories. Replication with more geographically and demographically diverse samples across Indonesia and other non-Western cultural contexts is also necessary to enhance generalizability. Experimental studies testing interventions based on digital literacy and meaning in life are strongly recommended to establish the causal effectiveness of these protective factors.

REFERENCES

- [1] L. Anaya, P. Howley, M. Waqas, and G. Yalonetzky, "Locked Down in Distress: A Quasi-experimental Estimation of the Mental-health Fallout From the COVID-19 Pandemic," *Econ. Inq.*, vol. 62, no. 1, pp. 56–73, 2023, doi: 10.1111/ecin.13181.
- [2] G. Bono, K. Reil, and J. Hescoc, "Stress and Wellbeing in Urban College Students in the U.S. During the COVID-19 Pandemic: Can Grit and Gratitude Help?," *Int. J. Wellbeing*, vol. 10, no. 3, pp. 39–57, 2020, doi: 10.5502/ijw.v10i3.1331.
- [3] S. A. Keramat, T. Comans, A. Pearce, R. Basri, R. Hashmi, and N. Dissanayaka, "Psychological Distress and Productivity Loss: A Longitudinal Analysis of Australian Working Adults," *Eur. J. Heal. Econ.*, vol. 26, no. 8, pp. 1503–1524, 2025, doi: 10.1007/s10198-025-01764-9.
- [4] K. Khademozaian, G. Kosmopoulou, S. Connelly, M. Fichtel, Y. Gujar, and H. Sun, "Technology Use, Work Adaptation, and Economic Vulnerability During COVID-19," *South. Econ. J.*, vol. 90, no. 1, pp. 31–43, 2023, doi: 10.1002/soej.12634.
- [5] M. Mileros, C. Norrman, and C. Öberg, "The Health Paradoxes of Social Media Influencers," *J. Innov. Entrep.*, vol. 14, no. 1, 2025, doi: 10.1186/s13731-025-00472-1.
- [6] S. N. Sato *et al.*, "Cultural Differences Between University Students in Online Learning Quality and Psychological Profile During COVID-19," *J. Risk Financ. Manag.*, vol. 15, no. 12, p. 555, 2022, doi: 10.3390/jrfm15120555.
- [7] M. Cheikh-Ammar and N. Jabagi, "LinkedIn's Dilemma: Navigating Stress and Well-Being on Professional Networking Platforms," *Internet Res.*, vol. 35, no. 7, pp. 71–90, 2025, doi: 10.1108/intr-08-2024-1292.
- [8] G. O. Awosanmi, A. F. Afolayan, M. Perry, G. O. Ajibádé, and S. A. Ajayi, "Policy Impacts in Dynamic Relation to Food, Income, Learning and Security: COVID-19 Lockdowns in a Nigerian Agrarian Community," *Environ. Dev. Sustain.*, 2024, doi: 10.1007/s10668-024-04938-2.
- [9] K. L. Daunt, D. A. Greer, H. S. Jin, and I. Orpen, "Who Believes Political Fake News? The Role of Conspiracy Mentality, Patriotism, Perceived Threat To freedom, Media Literacy And concern for Disinformation," *Internet Res.*, vol. 33, no. 5, pp. 1849–1870, 2023, doi: 10.1108/intr-07-2022-0565.
- [10] A. Abubakar, F. H. A. Mourgan, B. A. Kharusi, and C. M. Elfitori, "Impact of Entrepreneurial Education, Trait Competitiveness and Psychological Capital on Entrepreneurial Behavior of University Students in GCC," *J. Enterprising Communities People Places Glob. Econ.*, vol. 17, no. 5, pp. 1022–1044, 2022, doi: 10.1108/jec-03-2022-0047.

- [11] K. M. Hmieleski, J. C. Carr, and R. A. Baron, “Integrating Discovery and Creation Perspectives of Entrepreneurial Action: The Relative Roles of Founding <scp>CEO</Scp> Human Capital, Social Capital, and Psychological Capital in Contexts of Risk Versus Uncertainty,” *Strateg. Entrep. J.*, vol. 9, no. 4, pp. 289–312, 2015, doi: 10.1002/sej.1208.