




The Impact of Technostress and Social Media Stressors on Sustainable Tourism Intentions: A Planned Behavior Approach among Indonesian Gen Z Workers

Lissa Rosdiana Noer^{1*}, Fadila Isnaini¹, Prahardika Prihananto¹, Sri Yayu Ninglasari¹, Syazwan Ab Talib²,
Muhammad Alfarizi¹

¹ Department of Business Management, Faculty of Creative Design and Digital Business, Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia

² UBD School of Business and Economics, Universiti Brunei Darussalam, Gadong BE1410, Brunei Darussalam

Corresponding Author Email: lissarosdiananoer@gmail.com

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ABSTRACT

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The rapid digitalization of work and the ubiquity of social media have heightened technostress (TS) and social media stressors (SNS stressors) among Generation Z (Gen Z) workers, impacting mental well-being and sustainable lifestyle choices. This study aims to examine how TS and SNS stressors affect sustainable tourism behavioral intention (TBI) among Indonesian Gen Z workers, using the Theory of Planned Behavior (TPB) framework. A quantitative method was applied using a structured online survey targeting 217 formally employed Indonesian Gen Z workers (aged 18–27). Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. Results indicate that TS and SNS stressors significantly influenced subjective norms (SN) and perceived behavioral control (PBC), but not attitude (AE). These two TPB constructs significantly predicted sustainable tourism intention. Mediation analysis revealed that PBC significantly mediated the relationship between TS and sustainable tourism intention, while both SN and perceived control mediated the effects of SNS stressors. AE did not serve as a significant mediator in either pathway. Theoretically, this study extends TPB by integrating modern digital stress dimensions, highlighting the primacy of social and control factors over attitudinal influences in Gen Z's sustainable travel decisions. Practically, the findings inform tourism marketers, policymakers, and HR managers to design wellness-green tourism, digital detox packages, and workplace policies that address digital fatigue. Positioning tourism as a means of psychological recovery from digital overload is crucial for engaging the digital-native workforce.

1. INTRODUCTION

The rapid advancement of digital technology and social media has transformed professional and personal life, especially for younger generations, the most active users. In work, digitalization boosts productivity and flexibility but increases time pressure, blurs work–life boundaries, and fosters technostress [1]. In personal life, intensive social media use is linked to anxiety, depression, and fear of missing out (FoMO) [2], with World Health Organization [3] reporting 11% of adolescents showing problematic use. In Indonesia, social media users exceeded 143.0–191.4 million in early 2025 [4], dominating Gen Z work norms through AI reliance and online collaboration [5]. Technostress (TS) involves techno-overload, techno-invasion, and uncertainty, while social media stressors (SNS stressors) include digital fatigue, FoMO, and social comparisons [6]. Both cause anxiety, depression, emotional fatigue, and sleep disorders while harming work–life balance [7, 8].

The relevance of digital stress to the tourism sector can be

seen from the increase in travel intentions as a coping mechanism against psychological pressure due to digital fatigue. Tourism is an effective means of psychological escape to reduce the digital burden [9]. Trips that involve contact with nature or places with minimal digital connections have been shown to restore mental and physical well-being [10]. For young workers, the intensity of digital stress encourages them to seek out activities that support digital detoxification and emotional recovery. The intention to travel appears as a form of seeking tranquility and fulfilling the psychological need for relaxation, meaningful social interaction, and improved health [11]. Therefore, understanding the factors that influence travel intentions, such as digital stress levels, personal motivation, and expectations for the travel experience, is essential to developing a tourism promotion strategy that is relevant to the young working segment.

A review of recent empirical studies shows that mental health factors play an important role in shaping travel intentions. Motivation to escape, personal growth, and involvement in wholesome activities are strong drivers in

fitness tourism [12, 13]. Nature-based tourism has also been shown to be effective in reducing symptoms of stress, depression, and anxiety, even though the effects are temporary [14]. Technology-free tourism offers relief from digital stress, facilitating mental recovery [15]. In addition, tourism with animal interaction also provides psychological benefits [16] and hot spring tourism improves psychological well-being and revisit intentions [17]. In the post-COVID-19 era, psychosocial needs and perception of health risks are the main determinants of travel intention [18, 19].

However, prior research highlights the existence of an attitude–behavior gap, particularly among Generation Z (Gen Z) in sustainability contexts. Although Gen Z frequently expresses strong pro-environmental attitudes and ethical concerns, these attitudes do not consistently translate into actual sustainable behaviors [20, 21]. This discrepancy may be driven by situational constraints, social influence, hedonic motivations, perceived behavioral control (PBC), and lifestyle convenience. In tourism, this gap is especially relevant because travel—while perceived as restorative—can simultaneously increase carbon emissions and consumption intensity [22, 23]. Therefore, examining how digital stress interacts with attitudes (AE), norms, and perceived control becomes crucial to understanding whether travel intention reflects genuine sustainable motivation or merely short-term psychological coping.

Although a number of studies have explored the relationship between digital stress and travel behavior, most are still general and have not integrated specific TS and SNS stressors in a single comprehensive theoretical framework. In addition, the Theory of Planned Behavior (TPB) approach, which is effective in explaining behavioral intentions, has not been widely applied to understand travel intentions in response to digital pressures, especially in the context of Gen Z workers in Indonesia. In fact, Gen Z is a digital native generation that is vulnerable to digital fatigue while also having great potential as a tourism actor. Therefore, this study is important to fill this gap by simultaneously examining the influence of TS, SNS stressors, and TPB factors (AE, subjective norms (SN), and perceptions of behavioral control) on tourism intentions. There are research questions proposed by this study, namely: *How do TS and SNS stressors influence AE, SN, and PBC, and in turn shape tourism behavioral intentions among Indonesian Gen Z workers, including the mediating role of these psychological factors in the relationship between digital stressors and travel intentions?*

This study aims to analyze the influence of TS and SNS stressors on the tourism behavioral intention (TBI) of Gen Z workers in Indonesia through the framework of the TPB, considering the mediating role of AE, SN, and perceptions of behavior control. Theoretically, the study expands the application of the SDGs by integrating two types of digital stress as predictors in the context of tourism, which are still rarely studied simultaneously. This contributes to the development of literature on digital psychology, tourism, and the behavior of the younger generation. Practically, the results of this research can be the basis for policy makers, tourism industry players, and work organizations to design tourism promotion strategies based on the psychological needs of young workers, including the development of digital detox tourism programs and work-life balance campaigns, in order to respond to the negative impact of digitalization on the welfare of the productive young generation.

2. LITERATURE REVIEW

2.1 Theoretical foundation: Theory of Planned Behavior

The TPB [24] is a theoretical model that explains how a person's intentions can predict their actual behavior. Three main components make up behavioral intentions: AE toward behavior, SN, and perceived control of behavior [24, 25]. The three influence each other in shaping the individual's tendency to act.

In the empirical study of tourism, the SDGs have become an important theoretical framework for understanding the intentions and behaviors of tourists. Research in the field of medical tourism shows that the three components of the SDG significantly influence travelers' decisions [26, 27]. In the case of sustainable tourism and slow tourism, AE towards the environment and perceptions of control over tourism choices are important indicators in tourists' decision-making behavior [28, 29].

The implementation of SDGs has also proven to be relevant among the younger and digital generations. TPB is used to describe the use of smartphones in the search for tourist information. Other studies show that SN and perceived control of behavior play a key role in the sustainable tourism behavior of younger generations [30] and in the intention of digital entrepreneurship [31].

Thus, TPB is not only relevant in explaining the behavior of tourists in general but also very effective in analyzing the behavioral dynamics of the younger generation influenced by digital technology and evolving social values.

2.2 Technostress in the digital work environment

TS is a negative psychological stress arising from the use of information and communication technology (ICT), characterized by anxiety, mental fatigue, and resistance to technology [32, 33]. The main dimensions of TS include techno-overload (excessive workload due to technology), techno-anxiety (technological anxiety), and digital fatigue [34]. Among young workers, TS is triggered by high job expectations and demands to stay connected (techno-invasion), difficulty understanding new technologies (techno-complexity), and anxiety about rapid technological changes (techno-uncertainty) [35, 36]. Lack of experience in managing digital dynamics also exacerbates this pressure. The impact includes psychological well-being disorders such as stress, anxiety, and emotional exhaustion, as well as decreased life satisfaction [37, 38]. TS encourages individuals to seek escape through leisure activities as compensation for cognitive fatigue and the role conflicts it causes [35, 37]. Stress due to techno-overload and techno-invasion increases the desire to achieve psychological recovery through relaxation and digital detoxification [39]. Therefore, TS is a strategic issue in the management of digital welfare of the young working generation.

Within the framework of the TPB, TS affects AE, SN, and perceptions of behavioral control towards psychological well-being activities such as leisure tourism and digital-free gaming. Alotaibi [39] and Liu and Hu [40] showed that TS decreases the intention to engage in digital learning due to negative perceptions of life balance and mental health. Sterling et al. [41] found that Digital Free Tourism (DFT) emerged as a planned response to the digital burden, driven by health and social connectedness motives, and strongly influenced by

positive AE and PBC. In leisure gaming and light recreation studies, the intention to engage in these activities was shown to be more influenced by AE towards the benefits of relaxation than by technical constraints [42, 43].

Based on the empirical evidence above, this study predicts that TS affects the perception of tourism psychological recovery activities of Gen Z Workers in a planned and meaningful way.

H1. *TS in Gen Z Workers has a significant positive effect on AE.*

H2. *TS in Gen Z Workers has a significant positive effect on SN.*

H3. *TS in Gen Z Workers has a significant positive effect on the PBC.*

2.3 Social media stressors and digital overload

SNS stressors such as FoMO, comparative stress, and cyberfatigue are significant triggers for digital fatigue. FoMO arises from anxiety about being left behind in other people's social experiences displayed on social media, triggering overuse and productivity disruptions [44-46]. Meanwhile, comparative stress drives feelings of inferiority due to curated ideal content, exacerbating emotional exhaustion [47, 48]. Cyberfatigue, as a form of digital fatigue, is an accumulation of constant exposure to online social demands [49]. Social media algorithms also exacerbate the pressure by selectively presenting content to increase engagement, reinforce the cycle of anxiety and self-image [50]. Social pressure and the need to represent oneself ideally create identity conflicts that trigger psychological stress [51].

Interestingly, social media plays an ambivalent role in shaping travel desires. Highly aesthetically curated visual content—such as images of exotic destinations, unique experiences, and luxurious lifestyles—evokes tourist aspirations and the urge to experience the same [52]. However, constant exposure to this kind of content can also exacerbate digital overload, especially when individuals feel stuck in a routine and unable to embody that lifestyle [53]. As a result, a paradox emerges: the desire to explore increases, but with mental fatigue due to social expectations shaped by social media algorithms.

Kessling et al. [53] and Xiang et al. [54] revealed that acute stress increases cue-reactivity to social media, especially in individuals with problematic usage tendencies, which indicates the role of intention as a mediator. Meanwhile, gaming activities can function as a stress escape, but they are also at risk of becoming internet gaming disorder (IGD) if accompanied by a poor coping strategy [55]. Social support through shared "hangouts" has been shown to reduce social media fatigue and reinforce positive experiences in online gaming [56].

Based on the literature and empirical evidence above, this study predicts that social media digital stress affects the perception of tourism psychological recovery activities of Gen Z Workers in a planned and meaningful manner.

H4. *SNS stressors in Gen Z Workers has a significant positive effect on AE.*

H5. *Social Networks Stressor in Gen Z Workers has a significant positive effect on SN.*

H6. *SNS stressors in Gen Z Workers has a significant positive effect on PBC.*

2.4 Linking Theory of Planned Behavior constructs and Gen Z workers' tourism intention

The TPB is a powerful theoretical framework in explaining the tourism intentions of the younger generation, especially Gen Z. Three main constructs of the TPB—AE, SN, and perceptions of behavior control—show varying influences on Gen Z's travel intentions in various tourism contexts. AE towards travel experiences are consistently the strongest predictors in determining Gen Z's travel intentions, including towards eco-friendly hotels and low-carbon transportation [57, 58]. SN show mixed influences; significant in some studies, especially related to the influence of friends and family, but not universally consistent [30, 59]. Meanwhile, PBC shows an important role in the context of domestic tourism during the COVID-19 pandemic [60], but minimal in the context of international destinations [61].

The SDG model is expanded with additional dimensions such as environmental concern and perceived risk to improve its predictive capabilities further. For example, environmental values reinforce AE towards sustainable tourism [62]. While the perception of health risks decreases tourism intentions, it can be mediated by positive AE and behavioral control [58, 63]. Gen Z's distinctive characteristics, such as digital connectedness and environmental concern, make them responsive to digital marketing and sustainable tourism campaigns. However, the gap between intentions and actual behavior remains a challenge [64].

Therefore, the integration of TPB with value, risk, and motivation-based approaches is relevant to effectively understanding and optimizing the travel behavior of Gen Z Workers.

H7. *AE in the TPB construct has a significant effect on Gen Z Workers' TBI.*

H8. *SN in the TPB construct have a significant effect on Gen Z Workers' TBI.*

H9. *PBC in the TPB construction has a significant effect on Gen Z Workers' TBI.*

2.5 The mediating role of Theory of Planned Behavior

The TPB is not only used to predict tourist intentions and behavior. Still, it has also been widely applied as a mediating variable in various contemporary tourism studies. These studies show that AE, SN, and PBC not only act as direct predictors but also bridge the relationship between external constructs and actual intentions and behaviors. In the expanded TPB model, Soliman [64] showed that AE, SN, and PBC mediate the influence of travel motivation, eWOM, destination image, and familiarity on tourists' revisit intentions to Egypt. In the context of cycling tourism, Sann et al. [65] revealed that perceptions of sustained alternative attraction mediate actual intentions and behaviors, highlighting the importance of volitional and non-volitional processes. As a mediator, the TPB construct also connects various important variables. For example, Liu et al. [66] found that behavioral intentions mediated the influence of satisfaction on the actual behavior of international travelers. Meanwhile, destination imagery mediates the relationship between eWOM and tourism intentions [67, 68]. In the context of heritage tourism, environmental interpretations significantly strengthen the relationship between intentions and behaviors [69]. The expanded TPB model has been shown to have higher

predictability than the original version, as shown in a study of Chinese students intending to go to Japan [70].

This study proposes the role of TPB construct mediation in explaining the relationship between digital stress and Gen Z workers' travel intentions, in order to expand understanding of the psychological mechanisms that influence the travel behavior of young generations in the digital era, which is full of technological and information overload pressure.

H10. *AE mediates the relationship between TS and Gen Z Workers' TBI.*

H11. *SN mediates the relationship between TS and Gen Z Workers' TBI.*

H12. *PBC mediates the relationship between TS and Gen Z Workers' TBI.*

H13. *AE mediates the relationship between SNS stressors and Gen Z Workers' TBI.*

H14. *SN mediates the relationship between SNS stressors and Gen Z Workers' TBI.*

H15. *PBC mediates the relationship between SNS stressors and Gen Z Workers' TBI.*

The series of 15 hypotheses that have been formed became the basis for the preparation of the research model in Figure 1.

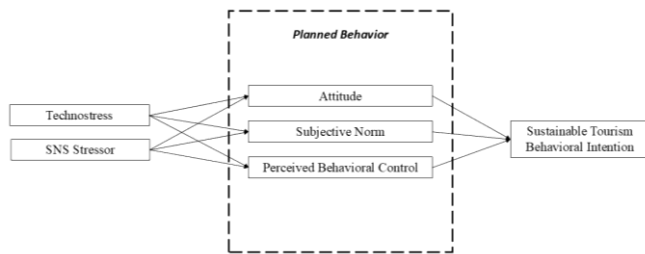


Figure 1. Research model proposed

3. RESEARCH METHODS

3.1 Research design and measurement

This research aims to examine the impact of TS and SNS stressors on sustainable tourism intentions, adopting the Theory of TPB as a theoretical framework. Toward that aim, this study seeks to understand how stress induced by technology and social media platforms affects the psychological mechanisms—such as AE, SN, and PBC—that influence Indonesian Gen Z workers' intentions to travel. To achieve this, the research adopts a quantitative approach using a structured survey method. Data will be collected through an online questionnaire distributed to Indonesian Gen Z workers, defined as individuals born between 1997 and 2012 who are currently employed. The unit of analysis in this study is individual Indonesian Gen Z workers.

To measure the constructs in this study, a structured questionnaire was developed using multiple items adapted from validated scales in previous literature. TS was measured through 18 items encompassing work overload, invasion of personal life, complexity, insecurity, and uncertainty related to technology [71-74]. SNS stressors were assessed using 19 items capturing aspects such as technological burden, social overload, relational pressure, and cognitive strain arising from social media platforms [75-78]. AE toward travel was measured through 4 items reflecting respondents' positive evaluation of travel experiences [23, 68, 79, 80]. SN were

assessed using five items that captured perceived social pressure and support from friends and family regarding travel [23, 68, 79, 80]. PBC included three items related to respondents' perceived ease or difficulty in engaging in tourism activities [23, 68, 79, 80]. Finally, TBI was measured with four items that reflect the intention to engage in future travel behaviors [63, 81-83]. All items were rated using a 5-point Likert scale.

3.2 Sample and data collection

This study focuses on Gen Z workers in Indonesia as the target population, referring to individuals born between 1997 and 2012. A purposive sampling technique was employed to select respondents based on the following inclusion criteria: (1) Indonesian citizenship, (2) aged between 18 and 27 at the time of data collection, (3) active users of social media, (4) formally employed in a company or public institution, and (5) having experience or intention to travel for recreational purposes or mental recovery. These criteria were established to ensure that respondents' experiences were relevant to the study's main theme concerning digital stress and tourism intention. To calculate the minimum number of participants, used G*Power software to perform a power analysis for multiple regression with an alpha level of 0.05, statistical power of 0.90, a medium effect size (0.15), and five predictors [84], producing a minimum requirement of 129 samples.

Table 1. Respondent characteristics

	Total	Percentage
Age		
17-20 Years Old	75	34.56%
21-24 Years Old	103	47.47%
25-30 Years Old	39	17.97%
Gender		
Man	40	18.43%
Woman	177	81.57%
Last Education		
Vocational High School/High School	64	29.49%
Diploma	22	10.14%
Bachelor	91	41.94%
Postgraduate (Magister/Doctor)	40	18.43%
Censorship Level; Monthly Income (in Rupiah-Dollar)		
IDR 1,00,000 - IDR 2,999,999 (USD 65 - USD 193)	22	10.14%
IDR 3,000,000 - IDR 4,999,000 (USD 194 - USD 322)	78	35.94%
IDR 5,000,000 – IDR 6,999,999 (USD 323 - USD 451)	66	30.41%
IDR 7,000,000 – IDR 10,000,000 (USD 452 – USD 645)	31	14.29%
> IDR 10,000,000 (> USD 645)	20	9.22%
Domicile		
Sumatera	50	23.04%
Jawa	103	47.47%
Kalimantan	24	11.06%
Sulawesi	13	5.99%
Bali-Nusa Tenggara	19	8.76%
Maluku-Papua	8	3.69%
Types of Frequent Tours (More than 1)		
Total Visits: 289 Visits		
Recreational Tourism	83	28.72%
Cultural Tourism	60	20.76%
Nature Tourism	75	25.95%
Religious Tourism	24	8.30%
Educational Tourism	32	11.07%
Health Tourism	15	5.20%

Source: Author's elaboration

Data collection used a hybrid strategy, deploying Google Forms as the survey tool. Enumerators shared the form both physically and through digital channels including WhatsApp, Instagram, and X (formerly known as Twitter), to ensure wide distribution across different regions and subgroups. The study adhered to ethical standards by providing respondents with clear information regarding the voluntary nature of participation, securing informed consent, and guaranteeing anonymity and confidentiality of their responses.

This study has successfully involved a total of 217 respondents who are Gen Z workers in Indonesia. Based on Table 1, the majority of respondents in this study were aged 21–24 years (47.47%), followed by the age group of 17–20 years (34.56%). Respondents were dominated by women (81.57%), and most had a Bachelor's degree (41.94%). Most respondents have a monthly income between IDR 3,000,000 and IDR 4,999,999 (35.94%). In terms of domicile, the most respondents came from Java (47.47%), followed by Sumatra (23.04%). In terms of the type of tourism that is most often carried out, recreational tourism occupies the highest position (28.72%), followed by natural tourism (25.95%) and cultural tourism (20.76%). These findings show that the majority of Gen Z Indonesian workers in the study are young women with a bachelor's education, with a middle income and a primary interest in leisure and nature tourism. This data is an important foundation in understanding the behavior of their travel intentions amid the pressure of technology and social media.

3.3 Data analysis technique

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4 to analyze the data. PLS-SEM was selected due to its suitability for predictive research models, complex structural relationships, and when data distribution assumptions are not strictly met [85]. The analysis process followed a two-step approach: first, the measurement model was assessed to evaluate the reliability and validity of the constructs, including indicator loadings, composite reliability (CR), average variance extracted (AVE),

and discriminant validity using the Fornell-Larcker criterion and HTMT ratio [86]. Second, the structural model was examined to test the hypothesized relationships among variables by analyzing path coefficients, t-values, and significance levels via bootstrapping with 5,000 resamples. The coefficient of determination (R^2), effect sizes (f^2), and predictive relevance (Q^2) were also assessed to evaluate the model's explanatory and predictive power [87]. This approach ensures robust and comprehensive evaluation of the research framework.

4. RESULTS

4.1 Measurement outer model

The measurement model in this study was assessed using indicators of reliability and validity, including Cronbach's alpha (CA), CR, AVE, outer loadings, and multicollinearity via variance inflation factor (VIF), as shown in Table 2. Given the reflective nature of the constructs, model reliability was evaluated through CA and CR, both of which exceeded the recommended threshold of 0.7 [86]. The CA values ranged from 0.602 (TBI) to 0.946 (TS), and CR values ranged from 0.774 to 0.952, indicating adequate internal consistency across constructs.

Convergent validity was confirmed with AVE values ranging from 0.525 to 0.651, exceeding the 0.5 threshold. Most outer loadings also surpassed 0.7, confirming good item reliability. Although some indicators slightly approached 0.7, they were retained due to strong theoretical grounding and overall construct reliability.

VIF values were examined to assess common method bias (CMB) and multicollinearity. All values were below the critical value of 5 and mostly below 3.3, indicating no serious CMB or multicollinearity issues [88]. Thus, the measurement model demonstrates satisfactory reliability, validity, and robustness.

Table 2. Convergent validity, reliability, and common method bias-variance inflation factor (CBM-VIF) results

Construct Indicator	Outer Loadings	AVE	CA	CR	VIF
<i>Technostress (TS)</i>					
Technological developments forced me to work much faster.	0.729				2.289
I was forced by technology to do more work than I could handle.	0.792				2.120
I was forced by this technology to work on a very tight schedule.	0.790				1.711
I was forced to change my work habits in order to adapt to new technology.	0.735				2.570
My workload increases due to the high complexity of technology.	0.755				2.803
I spend less time with my family because of technology.	0.779				3.039
I still have to connect with work even while on vacation because of this technology.	0.710				3.045
I had to sacrifice my vacation time and weekends to keep up with new technologies.	0.788				3.181
I feel like my personal life is being disrupted by this technology.	0.742	0.525	0.946	0.952	3.982
I don't understand this technology enough to do my job well.	0.760				3.605
It took me a long time to understand and use the new technology.	0.715				3.281
I didn't have enough time to learn and improve my tech skills.	0.708				4.663
I feel like my colleagues understand computer technology better than I do.	0.739				4.489
I often feel like new technologies are too complicated for me to understand and use.	0.713				2.457
I have to update my skills so that they are irreplaceable constantly.	0.794				2.336
I felt threatened by colleagues with newer tech skills.	0.764				2.631
I don't share my knowledge for fear of being replaced.	0.790				2.930
There are always new developments in the technology I use.	0.792				3.138
<i>SNS Stressor (STS)</i>					
It took me a long time to understand and use social networking platforms.	0.716				1.776
I don't have enough time to improve my tech skills in using social networking platforms.	0.797	0.541	0.897	0.906	6.438

Younger people are more adept at using social networking platforms than I am.	0.766					6.321
I often feel that social networking platforms are too complicated to use.	0.745					4.135
There are always new terms and conditions on social networking platforms.	0.763					5.019
In general, social networking platforms are constantly changing.	0.710					3.142
I communicate too much with my online contacts, even on vacation.	0.743					3.217
I feel like my personal life is being disrupted by social networking platforms.	0.780					2.667
I felt compelled to tell my friend about the news immediately.	0.797					2.892
I feel like I have to communicate regularly with friends.	0.754					2.321
I feel like my social status is always threatened by what I share online.	0.775					1.654
I feel pressured by friends to keep checking for their updates.	0.713					2.522
I don't share all my news so that I can stay more informed than my friends.	0.776					1.946
I feel like my friends don't share all their news either, to stay the ones who know the best.	0.801					2.295
I pay too much attention to the well-being of my friends on social networking platforms.	0.725					3.178
I'm too involved with the personal problems of friends on social networking platforms.	0.807					3.705
My sense of responsibility for my friends' online enjoyment is too great.	0.751					2.953
I care too much about my friends on social networking platforms.	0.731					4.312
I pay too much attention to my friends' uploads.	0.732					4.015
Attitude (AE)						
I feel that the journey is very interesting.	0.817					1.948
I consider travel to be something valuable.	0.845	0.621	0.795	0.867		2.021
I believe that travel is meaningful.	0.735					1.365
I consider travel to be a fun activity.	0.748					1.475
Subjective Norm (SN)						
My friends/family often talk about travel.	0.784					2.123
My friends/family love to travel.	0.851					2.718
My friends/family recommended that I go on a trip.	0.850	0.651	0.866	0.903		2.366
My friends/family believe that I should travel.	0.748					2.131
My friends/family are supportive of my travel plans.	0.796					2.256
Perceived Behavioral Control (PBC)						
I have enough time to travel.	0.845					1.464
I have enough money to travel.	0.839	0.573	0.617	0.795		1.433
If I wanted to, I felt like I could travel.	0.748					1.092
Sustainable Tourism Behavioral Intention (TBI)						
I want a sustainable vacation.	0.877					1.893
I want to increase the frequency of my vacation.	0.847	0.589	0.602	0.774		1.881
I want to extend the duration of my vacation.	0.714					1.012
I want to increase my vacation spending.	0.709					1.201

Table 3. Discriminant validity

Fornell-Larcker Criterion						
	AE	PBC	STS	SN	TS	TBI
AE	0.888					
PBC	0.622	0.957				
STS	0.735	0.632	0.784			
SN	0.696	0.735	0.649	0.807		
TS	0.443	0.539	0.700	0.518	0.724	
TBI	0.550	0.775	0.573	0.689	0.582	0.699
Heterotrait-Monotrait Ratio (HTMT)						
AE						
PBC	0.782					
STS	0.771	0.801				
SN	0.828	0.758	0.654			
TS	0.498	0.694	0.712	0.558		
TBI	0.775	0.748	0.758	0.718	0.726	

Discriminant validity in this study was evaluated using two key methods: the Fornell-Larcker criterion and the Heterotrait-Monotrait ratio (HTMT), as shown in Table 3. According to the Fornell-Larcker criterion, discriminant validity is established when the square root of AVE for each construct (diagonal values) is greater than its correlations with other constructs (off-diagonal values) [89]. All constructs in this study fulfill this condition—for example, the AVE square root for AE is 0.888, which is higher than its correlation with other constructs, such as STS (0.735) and SN (0.696).

Furthermore, the HTMT values for all construct pairs are

below the conservative threshold of 0.85 [90], with the highest being 0.828 between AE and SN. This confirms that constructs are empirically distinct. Therefore, both Fornell-Larcker and HTMT results indicate that the measurement model possesses strong discriminant validity, supporting the model's robustness and structural accuracy.

4.2 Goodness of Fit model analysis

Goodness of Fit (GoF) model analysis was assessed using several fit indices, including SRMR, d_ ULS, d_ G, Chi-square, and NFI, as presented in Table 4. The SRMR values for both the saturated (0.045) and estimated (0.058) models are below the 0.08 threshold [86], indicating a good model fit. The NFI values are 0.912 (saturated) and 0.894 (estimated), both exceeding the recommended minimum of 0.9 [86], suggesting acceptable model quality. Additionally, the Chi-square values and discrepancy measures (d_ ULS and d_ G) fall within acceptable ranges [91]. Overall, these results confirm that the model demonstrates good fit and structural adequacy.

Table 4. Fit model result

Fit Index	Saturated Model	Estimated Model
SRMR	0.045	0.058
d_ ULS	1.756	2.103
d_ G	1.223	1.450
Chi-square	120.45	134.78
NFI	0.912	0.894

4.3 Inner model structural

The inner model structural evaluation in PLS-SEM was conducted using effect size (f^2), T-statistics (T), and p-values (P). All relationships in the model demonstrated statistically significant results, indicated by T-values > 1.96 and p-values < 0.05. These findings confirm that the hypothesized paths among constructs are supported [86]. Additionally, effect size (f^2) values ranged from small to moderate, suggesting varying but meaningful influences among variables [87].

Based on Figure 2 and Table 5, the structural model analysis confirmed that most hypothesized relationships were statistically significant. TS significantly influenced AE ($\beta =$

0.139, $p = 0.017$), SN ($\beta = 0.124$, $p = 0.047$), and PBC ($\beta = 0.190$, $p = 0.004$), indicating its moderate effect, especially on control ($f^2 = 0.784$). Similarly, SNS Stressor had a strong and significant effect on AE ($\beta = 0.832$, $p < 0.001$), SN ($\beta = 0.562$, $p < 0.001$), and PBC ($\beta = 0.499$, $p < 0.001$), reflecting high predictive power.

Among the TPB components, SN ($\beta = 0.255$, $p < 0.001$) and PBC ($\beta = 0.580$, $p < 0.001$) significantly predicted TBI. However, AE ($\beta = 0.012$, $p = 0.808$) was not significant, indicating it does not directly influence intention in this model. These results highlight the stronger role of perceived social pressure and control over behavior compared to personal evaluation.

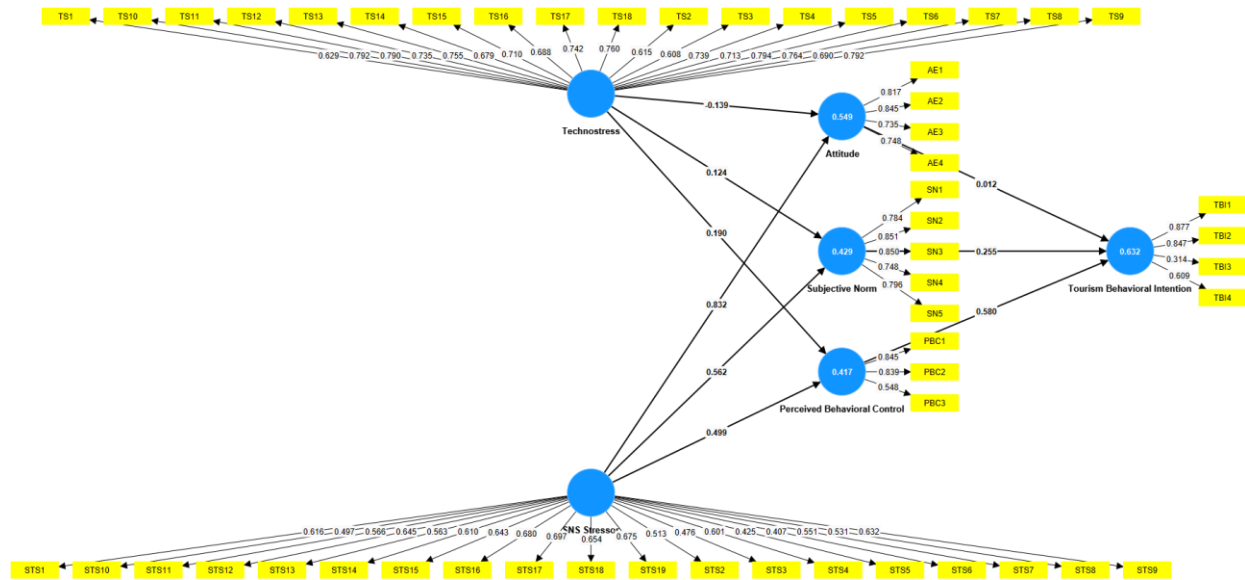


Figure 2. Structural model output

Table 5. Direct hypothesis testing results

Hypothesis	Path Coefficient	T-Test	P-Value	Interpretation
H1: TS → AE	0.139	2.382	0.017	Accepted
H2: TS → SN	0.124	1.985	0.047	Accepted
H3: TS → PBC	0.190	2.914	0.004	Accepted
H4: SNS Stressor → AE	0.832	21.293	0.000	Accepted
H5: SNS Stressor → SN	0.562	11.207	0.000	Accepted
H6: SNS Stressor → PBC	0.499	8.076	0.000	Accepted
H7: AE → TBI	0.012	0.243	0.808	Declined
H8: SN → TBI	0.255	4.155	0.000	Accepted
H9: PBC → TBI	0.580	11.397	0.000	Accepted

Table 6. Mediation analysis results

Hypothesis	Path Coefficient (β)	T-Value	P-Value	95% CI (Lower–Upper)	Interpretation
H10: TS → AE → TBI	0.002	0.227	0.821	-0.015 – 0.021	Declined
H11: TS → SN → TBI	0.032	1.636	0.102	-0.006 – 0.071	Declined
H12: TS → PBC → TBI	0.110	2.733	0.006	0.035 – 0.187	Accepted
H13: SNS Stressor → AE → TBI	0.010	0.242	0.809	-0.024 – 0.041	Declined
H14: SNS Stressor → SN → TBI	0.144	4.009	0.000	0.074 – 0.221	Accepted
H15: SNS Stressor → PBC → TBI	0.289	6.784	0.000	0.201 – 0.378	Accepted

Table 7. Values for Stone-Geisser’s Q^2 and adjusted R-squared

Construct	R-Square	R-Square Adjusted	Q-Square
AE	0.549	0.547	0.334
SN	0.429	0.426	0.279
PBC	0.417	0.414	0.207
TBI	0.632	0.629	0.433

As shown in Table 6, the mediation analysis revealed that three of the six indirect paths were statistically significant. TS indirectly influenced TBI through PBC (H12: $\beta = 0.110$, $p = 0.006$), while SNS Stressor had significant indirect effects via SN (H14: $\beta = 0.144$, $p < 0.001$) and PBC (H15: $\beta = 0.289$, $p < 0.001$). These findings indicate that both social and control perceptions are key mediators in the relationship between stressors and intention. However, mediation through AE (H10, H13) and SN in the TS pathway (H11) was not supported, suggesting these paths do not significantly convey the influence of TS or SNS Stressor on behavioral intention.

Table 7 presents the R-square, adjusted R-square, and Stone-Geisser's Q^2 values, which assess the model's explanatory and predictive power [86]. The R-square values indicate that the model explains 54.9% of the variance in AE, 42.9% in SN, 41.7% in PBC, and 63.2% in TBI. These values suggest moderate to substantial explanatory power, especially for the final dependent construct, TBI. The adjusted R-squared values are only slightly lower, indicating a stable model with minimal overfitting. Additionally, the Q^2 values for all constructs exceed the threshold of 0, confirming the model's predictive relevance. TBI shows the highest Q^2 (0.433), followed by AE (0.334), suggesting strong predictive capability in key constructs.

4.4 PLSpredict and CVPAT analysis

PLSpredict is a key technique in PLS-SEM used to assess the model's out-of-sample predictive power. It compares the predictive performance of the PLS-SEM model against a linear benchmark model (LM) through metrics such as Root Mean Square Error (RMSE), Mean Absolute Error (MAE), and $Q^2_{predict}$. A higher $Q^2_{predict}$ value indicates stronger predictive relevance, while lower RMSE and MAE values suggest better accuracy. PLSpredict bridges the gap between explanatory and predictive modeling, ensuring that the estimated model not only fits the data well but also performs reliably in predicting new observations.

Table 8 summarizes the PLSpredict results for all measurement indicators. Overall, the $Q^2_{predict}$ values are positive, confirming the predictive relevance of the model. Most indicators exhibit lower PLS-SEM \underline{RMSE} and PLS-SEM \underline{MAE} values compared to the \underline{LM} benchmarks, indicating superior predictive performance of the PLS-SEM model. Constructs such as AE and SN demonstrate relatively higher $Q^2_{predict}$ values, reflecting stronger prediction accuracy. Meanwhile, PBC and TBI items show moderate predictive strength. These findings suggest that the PLS-SEM model provides robust out-of-sample prediction, supporting the model's reliability and generalizability across the observed constructs.

Table 8. PLSpredict results

Construct Indicator	$Q^2_{predict}$	PLS-SEM \underline{RMSE}	PLS-SEM \underline{MAE}	LM \underline{RMSE}	LM \underline{MAE}
AE1	0.343	0.721	0.562	0.598	0.471
AE2	0.381	0.750	0.610	0.745	0.571
AE3	0.314	0.732	0.585	0.744	0.589
AE4	0.287	0.765	0.610	0.810	0.647
PBC1	0.233	0.790	0.645	1.000	0.734
PBC2	0.302	0.755	0.625	0.774	0.586
PBC3	0.159	0.740	0.640	0.772	0.591
SN1	0.368	0.720	0.570	0.737	0.609
SN2	0.371	0.710	0.555	0.770	0.647
SN3	0.271	0.760	0.605	0.774	0.654
SN4	0.135	0.780	0.635	0.793	0.684
SN5	0.175	0.810	0.660	0.886	0.685
TBI1	0.260	0.800	0.645	0.813	0.634
TBI2	0.158	0.790	0.630	0.931	0.734
TBI3	0.084	0.740	0.600	0.760	0.594
TBI4	0.183	0.770	0.635	0.800	0.600

5. DISCUSSION

5.1 Discussion

The results of testing Hypotheses 1, 2, and 3 show that TS significantly influences AE, SN, and perceptions of behavioral control in the context of travel intentions among Indonesian Gen Z workers. The acceptance of this hypothesis is consistent with previous findings that TS encourages recovery behaviors through positive AE, social norms, and behavioral control [36, 40], especially for Gen Z, who are affected by techno-invasion and are looking for balance through tourism activities [35]. These findings reinforce the position of TS as a psychological determinant that influences the way individuals evaluate travel decisions. In relation to AE, TS has the potential to create cognitive and emotional pressure that triggers the need to detach oneself, thereby encouraging the formation of positive AE towards tourism activities as a form of coping mechanism.

Meanwhile, the influence on SN reflects how technological pressures can also modulate perceptions of social expectations; in this case, Gen Z tends to respond to TS by referring to collective norms to seek validation of behaviors, including in travel decisions. The association with PBC shows that the higher the level of TS, the stronger the urge to regain control of personal time and energy through planned vacation behaviors. TS acts as a motivational trigger that reinforces the main components in the TPB, leading individuals to formulate the desire to travel as a form of psychological recovery and life balance.

This study confirms Hypotheses 4, 5, and 6 that SNS stressors have a significant influence on AE, SN, and PBC in the context of Gen Z workers' travel intentions in Indonesia. The acceptance of this hypothesis is supported by the literature showing that SNS stressors such as FoMO, social comparison, and cyberfatigue encourage individuals to seek psychological escape through tourism activities [43, 47] and shape

behavioral intentions through social norms and self-control [51]. Constant exposure to social pressures in digital media, such as social comparisons, self-image expectations, and FoMO, encourages the formation of positive AE towards tourism activities as a means to calm down and restore personal identity. In the context of SN, SNS stressors play a role in shaping perceptions of social expectations. Gen Z tends to respond to these pressures by internalizing social values that support a balanced lifestyle, including tourism activities as a symbol of status and well-being. Furthermore, the pressure from social media also has an impact on PBC, where individuals feel they have a greater urge to regain control of their lives through intentional travel plans. These results show that SNS stressors not only play a role as a pressure factor but also as a trigger for the formation of behavioral intentions within the framework of the TPB, strengthening the perception of travel as a form of self-actualization and resistance to invasive digital pressure.

The results of testing Hypotheses 7, 8, and 9 reveal interesting dynamics in the formation of TBI among Indonesian Gen Z workers. The non-acceptance of Hypothesis 7 shows that AE toward tourism do not directly encourage the intention to engage in sustainable tourism behaviors. This rejection contradicts previous studies that positioned AE as a primary predictor of Gen Z's travel intentions [56, 57]. However, the result can be explained by the well-documented attitude-behavior gap within this generation [63]. This suggests that although Gen Z may personally value sustainability in tourism, such attitudes may not readily translate into concrete sustainable actions unless supported by external influences or perceptions of control.

One important finding is the non-significant effect of sustainability attitudes on sustainable tourism intention among Indonesian Gen Z workers. This result reflects the well-established attitude-behavior gap in sustainability research, where expressed pro-environmental concern does not consistently translate into behavioral intention. In this study, SN and PBC emerged as stronger predictors than attitudes. This suggests that, for digital-native populations, intention formation may be driven more by social expectations and perceived feasibility than by internal evaluative beliefs. Under conditions of TS and SNS pressure, sustainable tourism may function less as a value-based choice and more as a socially endorsed and practically manageable coping strategy. The dominance of PBC further indicates that structural constraints (e.g., time, financial flexibility, work demands) may limit the translation of positive attitudes into concrete planning. Thus, the attitude-behavior gap observed here appears to reflect shifting motivational priorities in digitally saturated environments rather than weak environmental values *per se*.

Conversely, the acceptance of Hypothesis 8 affirms the important role of SN; social expectations from peers, digital communities, or social media influencers exert stronger pressure in shaping sustainable tourism intentions. This finding aligns with Fenitra et al. [29] and Phi and Duong [58], who highlight that peer-driven norms significantly shape Gen Z's behavioral orientations. Within the sustainability context, this suggests that social encouragement—such as the normalization of eco-friendly trips or low-impact travel narratives—may be more persuasive than personal attitudes alone.

Furthermore, the results for Hypothesis 9 confirm that PBC is the strongest predictor of TBI. When individuals believe they have adequate resources, time, and ability to perform

sustainable travel practices, their intention significantly increases. Support for Hypothesis 9 echoes findings by Kharuhayothin et al. [59], emphasizing the importance of control perceptions in domestic tourism behavior. These outcomes show that a combination of social pressure and self-efficacy becomes a dominant driver, indicating the need for practical and socially supported approaches to foster Gen Z's engagement in sustainable travel.

The results of the mediation testing further provide insights into the indirect pathways between TS and sustainable tourism intentions among Indonesian Gen Z workers. The rejection of Hypotheses 10 and 11 shows that subjective attitudes and norms are not capable of significantly mediating the relationship between TS and sustainable tourism intentions. This suggests that technological pressure fails to form emotional evaluations or social norms strong enough to directly stimulate sustainable behavioral intentions.

In contrast, the acceptance of Hypothesis 12 confirms that PBC serves as an effective mediator. This means that TS tends to encourage individuals to reevaluate their capacity to manage stress through structured, restorative activities, including environmentally responsible travel. When individuals feel capable of regaining control of their lives, TS can serve as a trigger for developing intentions to engage in sustainable travel as a form of self-regulation. These findings highlight that coping mechanisms grounded in personal control are more influential than emotional or social responses when linking digital stressors to sustainable travel decisions within the TPB.

Testing Hypotheses 13, 14, and 15 reveals distinct mediation dynamics for the influence of SNS stressors on sustainable tourism intentions. The rejection of Hypothesis 13 indicates that although SNS stressors significantly affect AE in direct analyses, the attitudinal pathway is not strong enough to mediate sustainable tourism intentions. This implies that emotional reactions to digital pressure—such as fatigue from social comparison—do not automatically motivate individuals to pursue sustainable travel practices.

On the contrary, the acceptance of Hypotheses 14 and 15 emphasizes that SNS stressors significantly influence sustainable tourism intentions through SNs and PBC. Social pressures within digital environments, including expectations surrounding lifestyle authenticity or environmentally conscious consumption, encourage individuals to respond based on normative cues. These pressures ultimately reinforce the intention to engage in sustainable travel as a socially aligned and reputationally positive behavior. Simultaneously, increased perceptions of self-control in managing digital stress foster an internal drive to pursue restorative and meaningful travel behaviors, including environmentally responsible trips. Overall, social norms and perceived control emerge as key mediation channels, confirming that Indonesian Gen Z's sustainable tourism behavior is shaped largely by socially and cognitively managed external pressures.

5.2 Theoretical implication

This study expands the application of the TPB within the context of sustainable tourism by integrating the digital stress dimension—namely, TS and SNS stressors—as new determinants influencing the formation of TBI among Indonesian Gen Z workers. Theoretically, these findings challenge the dominance of the attitude construct as the primary predictor of behavioral intentions in sustainability-

related domains, particularly those aligned with the SDGs, by showing that attitudes toward sustainability do not significantly influence sustainable tourism intentions.

In contrast, SN and PBC emerge as key mediators and predictors, underscoring that social pressures and perceived capability to perform sustainable actions play a more decisive role in translating digital stress into sustainable behavioral outcomes. This highlights the need to revise the conventional TPB perspective to adapt to the psychological and social dynamics of digital-native populations, for whom external digital influences may outweigh internal attitudinal evaluations.

Moreover, the study introduces TS and SNS stressors as upstream variables that enrich the TPB model by integrating contemporary psychosocial contexts related to digital overload, online social comparison, and constant connectivity. In doing so, this research contributes to the development of a more holistic theoretical framework for understanding sustainable tourism behavior as a self-regulatory response to technological pressures, while opening opportunities for deeper exploration of modern psychological determinants within planned behavior models.

5.3 Practical implications

The findings of this study provide strategic implications not only for tourism stakeholders but also for broader sustainable development agendas, particularly in relation to SDG 8 (Decent Work and Economic Growth) and SDG 13 (Climate Action).

First, in alignment with SDG 8, the results underline the importance of integrating psychosocial well-being into workplace sustainability frameworks. The strong role of PBC suggests that organizations should create structural conditions that enable employees to disconnect from excessive digital demands. This may include establishing clear digital boundaries, limiting after-hours communication, implementing “technology sabbatical” policies, and designing restorative leave programs. Encouraging structured recovery activities—such as sustainable and nature-based tourism—can contribute to healthier, more productive, and more resilient young workers, thereby supporting decent work environments in the digital era.

Second, in relation to SDG 13, tourism promotion strategies must ensure that recovery-oriented travel does not exacerbate carbon-intensive consumption patterns. While digital detox tourism may function as a coping mechanism for TS, it should be embedded within low-impact, climate-conscious tourism models. Tourism providers are therefore encouraged to promote eco-certified accommodations, slow travel options, domestic green destinations, and regenerative tourism programs. Positioning sustainable tourism as both psychological recovery and environmental responsibility helps reconcile digital well-being with climate action objectives.

At the policy level, ministries of tourism and labor can design integrated programs that simultaneously address digital fatigue and environmental sustainability. Campaigns such as “Digital-Free Green Vacation” initiatives may encourage young workers to engage in environmentally responsible travel while reducing TS. Incentives for domestic sustainable tourism can also reduce carbon footprints associated with long-haul travel.

From a corporate perspective, employee well-being policies

should recognize TS as a psychosocial occupational risk while aligning recovery strategies with sustainability commitments. Partnerships with sustainability-oriented tourism operators can provide structured recovery programs that reflect both employee welfare and environmental accountability. Given the significant influence of SN identified in this study, collaborations with digital influencers who promote low-impact tourism behaviors may further strengthen pro-sustainability social expectations among Gen Z.

6. CONCLUSIONS

This study concludes that digital pressure in the form of TS and SNS stressors significantly affects the sustainable travel intention of Gen Z Indonesian workers, through the mediation of SN and PBC, but not through AE. These findings highlight the importance of social factors and perceptions of personal control in shaping travel intentions in response to digital fatigue. TS drives the need for psychological recovery through an increased sense of control over time and energy, while social media pressures reinforce the influence of collective norms and social expectations on sustainable travel decisions. By integrating the TPB with digital stress, the study expands the theoretical understanding of the travel behavior of the digital-native generation.

However, this study has some limitations. First, data were collected cross-sectionally, so it was not possible to capture the longitudinal dynamics of TS on tourism behavior. Second, the population is limited to Gen Z workers in Indonesia, which limits global generalizations, even though the theoretical approach is universal. Third, insignificant AE variables may be affected by social biases or dynamics of local cultural norms that are not directly measured. For further research, it is recommended that a longitudinal approach, cross-cultural population expansion, as well as the integration of other factors such as coping styles, digital literacy, and economic risk, be suggested in order to provide a more holistic understanding of digital-native tourism behavior in the face of technological pressure.

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