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Insecure-Anxious Attachment and Social Loneliness: The Mediating Roles of Income Security and Financial Well-Being

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Abstract

Purpose: This study aims to analyze the effect of insecure-anxious attachment on social loneliness, with income security and financial well-being as mediating variables.

Research Methodology: This study employs a quantitative research approach, with questionnaires distributed to 400 respondents from Generations X, Y, and Z in Batam City using purposive sampling, supported by interview insights, and analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM).

Results: The findings indicate that insecure-anxious attachment has a significant negative effect on income security and financial well-being, which in turn negatively affect social loneliness. Although insecure-anxious attachment has no direct effect on social loneliness, both financial variables fully mediate the relationship.

Conclusions: Financial factors play a crucial mediating role in linking psychological attachment and social loneliness.|

Limitations: This study is limited to respondents in Batam City and only examines income security and financial well-being as mediating variables. Other potential factors influencing social loneliness were not included in the research model.

Contributions: This study advances the application of Attachment Theory and Self-Determination Theory by showing that insecure-anxious attachment is associated with social loneliness indirectly through income security and financial well-being rather than through a direct pathway. By integrating psychological and financial perspectives, the study positions financial conditions as mechanisms linking attachment-related insecurity to social disconnection, extending the application of both theories to the intersection of psychological, financial, and social experiences.

Keywords: *Financial Well-Being, Income Security, Insecure-Anxious Attachment, Social Loneliness*

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1. Introduction

Social loneliness is increasingly becoming a serious psychosocial issue in today's society. Establishing relationship and sustaining relationships have been impacted by societal organizational changes, the development of digital technology, and evolving lifestyles. People general well-being and mental health may be significantly impacted by this. As a results, people's sense of interpersonal connections is also evolving. When people believe their social connections are insufficient or unsatisfying, they experience social loneliness (Sandy Jr et al., 2025). People who experience social loneliness frequently report feeling alone as well as having worse mental health and a lower level of life satisfaction. This frequently results in feeling less encouraged by others and being less inclined to participate in social events. People who experience these emotions may eventually become more emotionally vulnerable and find it more difficult to form solid social bonds (Taylor et al., 2023).

The experience of social loneliness is also influenced by cultural norms that shape how people build relationships and maintain community ties. Indonesia provides an important context for examining social loneliness because of its strong collectivist cultural values, which emphasize familial relationships, social harmony, and community participation. In collectivist societies, individuals are generally expected to receive greater social support and maintain close interpersonal relationships. Nevertheless, social loneliness remains prevalent despite these cultural characteristics (Amalia et al., 2025). Previous studies have suggested that loneliness in collectivist societies may arise not only from physical isolation but also from unmet expectations regarding intimate and harmonious social relationships (Akhter-Khan et al., 2024). Furthermore, research conducted in Indonesia indicates that loneliness affects individuals across different age groups and is influenced by various social and psychological factor (Peltzer & Pengpid, 2019).

Among the psychological factors associated with social loneliness, insecure-anxious attachment has been identified as a significant determinant. Attachment styles influence how individuals regulate emotions and respond to interpersonal interactions (Messina et al., 2024). Individuals who suffer from insecure-anxious attachment frequently exhibit more intense emotional responses, fear rejection, and want a great deal of validation from others (Shahid & Ali, 2024). These characteristics may make it difficult to maintain stable connections, which may result in feelings of social loneliness. However, focusing only on interpersonal and psychological characteristics may not fully explain how attachment related insecurity becomes associated with social loneliness.

Financial conditions may provide another pathway through which psychological vulnerability is associated with social loneliness. Income security refers to having a consistent and predictable income both currently and in the future (Chatterjee et al., 2019; Thorpe et al., 2020), whereas financial well-being refers to feeling secure and having good money management, which results in general financial satisfaction (Lone & Bhat, 2022; Valentina & Marheni, 2024). Individuals with lower income security and financial well-being may experience greater financial stress, restrict opportunities for social participation, and create psychological burdens that affect individuals' social relationships. Thus, financial experiences may represent an important link between psychological vulnerability and social connectedness.

This relationship is particularly relevant in Indonesia, where a large proportion of the population is within the economically productive age group. In 2020, 70.72% of Indonesia 270.2 million inhabitants were aged (15-64 years), dominated by Generation Z (27.94%) and millennials (25.87%) (Dewi & Purwantoro, 2024). Although economically active individuals may have greater opportunities for social interaction, they may also face financial responsibilities and economic pressures that influence their psychological well-being and social relationships. Therefore, being economically productive does not necessarily protect individuals from experiencing social loneliness.

Despite the growing literature on social loneliness, an important theoretical and empirical gap remains unresolved. Existing research has largely explained loneliness through psychological and interpersonal mechanisms, including attachment-related insecurity, while financial research has primarily examined income security and financial well-being in relation to economic and subjective well-being. These perspectives have largely developed in parallel, leaving unclear how psychological insecurity may translate into social disconnection through individuals' financial experiences. Consequently, the existing literature does not sufficiently explain whether financial conditions represent a pathway through which insecure-anxious attachment is associated with social loneliness.

This gap is important because a psychological explanation alone may not fully capture the processes underlying social loneliness. Insecure-anxious attachment is characterized by heightened concerns about rejection, uncertainty, and security. These concerns may extend beyond interpersonal relationships and influence how individuals perceive their financial stability and well-being. In turn, financial insecurity may create psychological pressure and constrain individuals' ability or willingness to engage socially. Without considering this financial pathway, the relationship between attachment-related insecurity and social loneliness may be understood primarily as an interpersonal phenomenon, overlooking a potentially important mechanism that connects psychological vulnerability with social outcomes.

This study contributes to the literature in three ways. First, it demonstrates that insecure-anxious attachment influences social loneliness indirectly through income security and financial well-being, suggesting that emotional insecurity alone is insufficient to explain social loneliness. Second, this study proposes a psychological-financial mediation perspective that extends the application of Attachment Theory and Self-Determination Theory in explaining how psychological vulnerability shapes social outcomes. Third, the findings broaden the understanding of social loneliness as a multidimensional phenomenon shaped not only by interpersonal and psychological factors but also by individuals' financial experiences and perceptions.

2. Literature Review and Hypotheses Development

2.1 Self-Determination Theory

Self-Determination Theory (SDT) explains how individual behavior and well-being are shaped by the fulfillment of three basic psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 2000). Autonomy refers to the ability to make independent decisions, competence reflects an individual's confidence in their own abilities, and relatedness represents the sense of connection with others. When these needs are fulfilled, individuals are more likely to develop intrinsic motivation, which supports both personal growth and overall well-being (Hagger & McAnally Star, 2026). Ryan et al. (1997) further explain that intrinsic motivation is a natural human tendency to utilize one's abilities for personal and cognitive growth. When it comes to income security and financial well-being, people who prioritize these two states actively put themselves on a path to pursue, achieve, and maintain them. They do this by acknowledging that these decisions come from within themselves (autonomy), having faith in their ability to successfully navigate financial challenges (competence), and expecting to be appreciated by those around them for finding satisfaction in reaching these financial goals (connectedness). According to SDT, income security and financial well-being are conditions that are actively sought for and maintained by meeting fundamental psychological needs rather than only being economic consequences (Di Domenico et al., 2022).

2.2 Attachment Theory

Attachment Theory describes how individuals from emotional bonds with significant others and how these bonds influence their behavior and emotional regulation (Bowlby, 1977; Hadi, 2024). These attachment patterns, are often developed early in life, tend to remain relatively stable and continue to shape how individuals respond to stress and interact in relationships. In general, attachment can be categorized into secure and insecure forms. Individuals with secure attachment tend to have greater emotional stability and healthier interpersonal relationships, whereas insecure attachment is often associated with anxiety and poor self-regulation (Hazan & Shaver, 1987). Over time, attachment patterns have an impact on social interactions as well as how people handle stressors in their lives, especially those associated with financial circumstances. Income security and financial well-being can be impacted by the emotional instability and anxiety linked to insecure-anxious attachment. Anxious people are more likely to feel economically insecure, hesitate when making financial decisions, and lack confidence in handling their income, all of which hinder their capacity to save money or make long-term financial plans. According to earlier research, people with insecure attachment typically have worse financial practices and are more vulnerable financially (Li et al., 2025). On the other hand, those who have a stable attachment style have higher emotional control and self-assurance, which improves their capacity to deal with uncertainty and make wise choices (Kazan & Kocamış, 2025). Therefore, Attachment Theory provides an important framework for understanding how emotional bonding patterns influence not only social relationships but also individual's sense of economic security and financial well-being.

2.3 Social Loneliness

Social loneliness is a condition when individuals feel emptiness, disengagement, and a sense of exclusion from others (Dykstra & de Jong Gierveld, 2004). According to Wolters et al. (2023), social loneliness arises when individuals perceive that they do not have sufficient social network to provide a sense of belonging and acceptance within a group. This condition leads to emotional distress due to unmet social connection needs. Furthermore, Barjaková et al. (2023) state that social loneliness is closely related to the perceived of quality and meaningfulness of relationships. Santini et al. (2025) and Haihambo et al. (2025) also emphasize that social loneliness can occur even when individuals are not physically isolated, highlighting that the quality of interactions is more important than their quantity. Therefore, social loneliness can be seen as an important indicator of psychosocial well-being, emerging when individuals feel disconnected from their social surroundings and shaped by both internal factors, such as relationship patterns, and external factors, including economic conditions.

2.4 Hypotheses Development

2.4.1 The Effect of Insecure-Anxious Attachment on Income Security

Individuals with insecure-anxious attachment tend to experience high levels of anxiety related to rejection and uncertainty. Anxiety, characterized by behavioral changes, physiological responses, panic, and feelings of apprehension about potential negative (Riyani & Maulia, 2023), may impair individuals' ability to make rational financial decisions. Smith and Eng (2024) found that insecure-anxious attachment negatively affects income security, as higher anxiety lowers individuals' confidence in managing income and long-term financial planning, thereby weakening their sense of financial stability. This finding is supported by X. Li et al. (2025), who also found that high levels of anxiety in interpersonal relationships can increase individual's vulnerability to economic abuse, which in turn leads to financial insecurity and dependence on others, while also leading to more impulsive and unplanned financial decisions. From a theoretical perspective, this relationship can be explained through psychological security Cai et al. (2025),where low psychological security limits rational decision-making and increases the risk of income instability. Additionally, Segal et al. (2023) found that anxious attachment reduces entrepreneurial motivation, calculated risk-tasking, and internal locus of control, all of them are important for maintaining long-term economic stability. Similarly, Warnock et al. (2024) showed that anxious attachment increases work stress and burnout, leading to lower productivity and disrupted income stability. Therefore, insecure-anxious attachment not only affects psychological well-being but also significantly reduces income security.

H_1: Insecure-anxious attachment has a significant negative effect on income security

2.4.2 The Effect of Income Security on Social Loneliness

A higher level of income security is associated with lower levels of social loneliness. Individuals who perceive their financial condition as stable and secure are more likely to experience better emotional well-being, which may enhance their ability to maintain meaningful social relationships and actively participate in social life (Shin et al., 2023). Conversely, lower levels of income security are associated with a greater risk of experiencing social loneliness, emphasizing the important role of financial resources in shaping social well-being (Beller, 2024). Income has also been found to contribute to differences in loneliness across demographic groups, with higher income levels being associated with lower levels of loneliness (Taylor et al., 2024). Furthermore, financial stability positively influences mental well-being and promotes social participation, while favorable financial conditions are consistently associated with lower levels of loneliness across countries and age groups (Barjaková et al., 2023; Egaña-Marcos et al., 2025). Similarly, stable financial status serves as a protective factor against social loneliness by supporting individuals' social engagement and independence (Zuo et al., 2023). Therefore, income security should be regarded not only as an economic resource but also as an important determinant of social connectedness that helps reduce the likelihood of experiencing social loneliness.

H_2: Income security has a significant negative effect on social loneliness

2.4.3 The Effect of Insecure-Anxious Attachment on Financial Well-Being

People who have an insecure-anxious attachment typically have poorer financial well-being because they are more anxious and hesitant about handling their money. According to Smith and Eng (2024), insecure-anxious attachment has a negative effect in financial well-being because emotional instability makes it difficult to make wise financial decisions. Similary, Joseph and Peetz (2024) showed that anxious attachment can lead to maladaptive financial behaviors such as financial snooping. Financial snooping is the practice of secretly reviewing partners' financial data in an effort to lower uncertainty. While this may seem reassuring at first, it eventually causes conflict and lowers satisfaction with one's own financial management. Li, Curran, LeBaron-Black, Jorgensen, Yorgason, and Wilmarth (2023) provided evidence to support this, showing that insecure-anxious attachment hinders adaptive financial management, resulting in poorer decision-making and an increased chance of financial conflict or mistakes. Additionally, El, Rahme, Younes, Assaf, and Zalaket (2026) highlighted that anxious attachment limits people's ability to cope with stress, making it more difficult to cope with economic pressures and build financial resilience, while Tammilehto, Kuppens, Bosmans, Flykt, Peltonen, Vänskä, and Lindblom (2023) discovered that anxious attachment increases daily negative emotions that contribute to unhealthy financial behaviors. In general, insecure-anxious attachment makes people more vulnerable to financial stress, bad financial choices, and unpleasant feelings, all of which limit the achievement of optimal financial well-being.

H_3: Insecure-anxious attachment has a significant negative effect on financial well-being

2.4.4 The Effect of Financial Well-Being on Social Loneliness

A person's view of their financial stability, including their ability to meet present financial responsibilities and their confidence in achieving long-term financial goals, is referred to as financial well-being (Hesniati et al., 2026). Financial well-being plays an important role in reducing social loneliness. Individuals with better conditions tend to experience greater financial security and psychological stability, which can encourage them to participate in social activities and maintain meaningful relationships (Veeroja et al., 2023). Adequate savings and liquid assets also provide greater financial flexibility, enabling individuals to remain socially connected during periods of financial uncertainty (Bialowolski et al., 2024; Drost et al., 2025). In contrast, financial strain and instability may increase stress and anxiety, reduce emotional resources for social interaction, and limit individuals' ability to participate in social activities (Chai et al., 2025). Furthermore, persistent financial instability may create uncertainty that makes it more difficult for individuals to establish and maintain meaningful social relationships (Bierman et al., 2024). Therefore, individuals with higher financial well-being are expected to experience lower levels of social loneliness.

H_4: Financial well-being has a negative effect on social loneliness

2.4.5 The Effect of Insecure-Anxious Attachment on Social Loneliness

Individuals with insecure-anxious attachment have a strong need for emotional closeness and an excessive fear of rejection or abandonment, which often leads to excessive validation-seeking and emotional dependency that hinder the formation of healthy social relationships. As a result, they are more vulnerable to social loneliness. Vowels et al. (2023) and Rippé et al. (2023) found that anxious attachment is positively associated with higher levels of social loneliness, as individuals are more likely to feel socially excluded and fear losing connections. This relationship is supported by Wolters et al. (2023), who linked social loneliness to negative emotional states such as anxiety, and by Myint et al. (2024), who showed that individuals with insecure attachment are more likely to interpret social distance as rejection. Furthermore, Eilert and Buchheim (2023) highlighted that difficulties in emotion regulation increase sensitivity to rejection and withdrawal, reinforcing feelings of isolation. Overall, insecure-anxious attachment increases the risk of social loneliness through relational anxiety and impaired emotional regulation.

H_5: Insecure-anxious attachment has a significant positive effect on social loneliness

2.4.6 The Effect of Insecure-Anxious Attachment on Social Loneliness Mediated by Income Security

Research by Li, Khan, Kuelz, and Zhao (2025) shows that insecure-anxious attachment can reduce job performance due to difficulties in managing stress, fear of rejection, and challenges in professional interactions, which may limit career opportunities and lead to lower income and decreased income security. This finding is supported by Smith and Eng (2024), who highlight that emotional instability and poor financial decision-making increase vulnerability to economic insecurity. Li, Curran, LeBaron-Black, Jorgensen, Yorgason, and Wilmarth (2023) found that anxious attachment negatively affects life satisfaction and financial management, as emotional distress interferes with long-term financial planning and optimal economic decision-making. As a result, individuals tend to experience lower income security. Lower income security, in turn can affect individual's opportunities to build and maintain social networks, thereby increasing the risk of social loneliness. Sarkar, Arakelyan, Choa, and Poghosyan (2023) and Bryan, Thompson, Goldman-Mellor, Moffitt, Odgers, and So (2024) also found that individuals with lower income are more likely to feel lonely or distressed, as financial limitations restrict their ability to participate in social activities and maintain interpersonal relationships. These findings indicate that insecure-anxious attachment is associated with reduced income security, which in turn increases social loneliness.

H_6: Insecure-anxious attachment has an effect on social loneliness mediated by income security

2.4.7 The Effect of Insecure-Anxious Attachment on Social Loneliness Mediated by Financial Well-Being

Individuals with insecure-anxious attachment tend to experience difficulties in regulating emotions and coping with daily life pressures, thereby reducing their sense of financial control and security (Eilert & Buchheim, 2023). Sagone et al. (2023) also found that attachment styles characterized by a high need for approval are negatively associated with psychological well-being, including financial aspects. This condition contributes to lower financial well-being, as supported by Miccoli et al. (2025), who highlight that lower financial well-being among individuals with insecure-anxious attachment is influenced by psychological factors such as impulsivity and self-control, which are associated with anxious attachment. Doostdari et al. (2024) also highlights that insecure-anxious attachment can worsen psychosocial outcomes, including financial conditions, due to low self-control and higher vulnerability to economic stress. Lower financial well-being then limits individuals' ability to maintain social engagement, increasing the risk of social loneliness. Drost et al. (2025) found that poor financial conditions, such as the lack of emergency savings, are associated with higher loneliness, while Smith and Eng (2024) also confirmed the negative link between insecure-anxious attachment and financial well-being. These findings indicate that insecure-anxious attachment reduces financial well-being, which subsequently increases social loneliness.

H_7: Insecure-anxious attachment has an effect on social loneliness mediated by financial well being

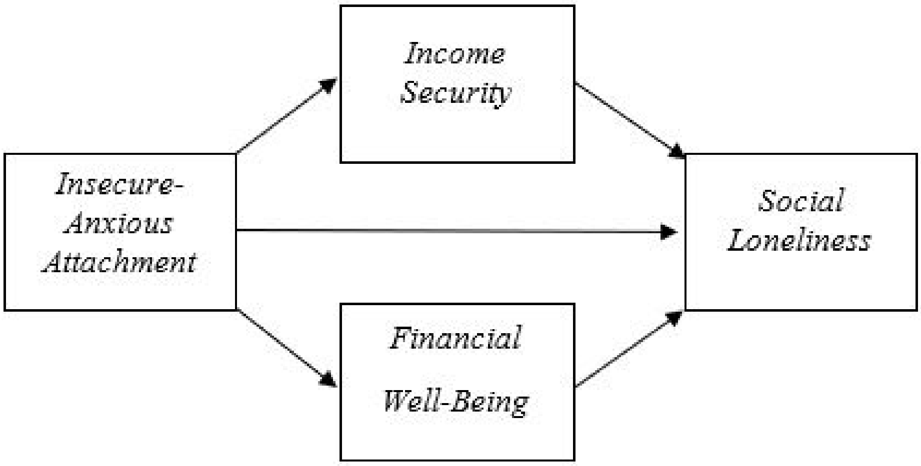

Figure 1. Conceptual framework

The proposed relationship among insecure-anxious attachment, financial well-being, and social loneliness is illustrated in the conceptual framework presented in Figure 1.

3. Methodology

This study employed a quantitative research design with supplementary interview insights to support the interpretation of the quantitative findings. The research took place in Batam City, Indonesia, and focused on income-earning individuals from Generations X, Y, and Z. A purposive sampling technique was applied to ensure that respondents met the predetermined criteria (Ali Memon et al., 2025). The respondents were required to (1) reside in Batam City, (2) belong to Generation X (45-60 years), Generation Y (29-44 years), and Generation Z (17-28 years), and (3) have an active source of income.

Based on data from Badan Pusat Statistik Kota Batam (2025),the population consisted of 606,490 income-earning individuals in Batam City in 2024. Using the Slovin Formula with a 5% margin of error, a minimum sample size of 400 respondents was obtained. Primary data were collected through a structured questionnaire distributed using Google Forms, measuring all variables using a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The measurement items were adapted from earlier studies. To provide additional contextual understanding of the quantitative findings, semi-structured interviews were conducted with three selected respondents representing different generations. These interviews were not intended as a formal mixed-method approach but served as supplementary qualitative insights to enrich the interpretation of the statistical results.

The quantitative data were analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS software to test the hypothesis and examine the relationships between variables (Budiman & Vivien, 2026). The analysis included validity and reliability testing, as well as structural model evaluation to examine the relationship between variables. The measurement items for each variable are presented in Table 1.

Table 1. Measurement items of research variables

Variables	Items	Question	Reference
Social Loneliness	SL1	I feel that I have sufficient social support to discuss daily problems.	(Dykstra & de Jong Gierveld, 2004)
Social Loneliness	SL2	I have many people I can rely on when facing problems.	(Dykstra & de Jong Gierveld, 2004)

Variables	Items	Question	Reference
Social Loneliness	SL3	I have many people whom I can fully trust.	(Dykstra & de Jong Gierveld, 2004)
Social Loneliness	SL4	I have enough people whom I consider close.	(Dykstra & de Jong Gierveld, 2004)
Social Loneliness	SL5	I can contact my friends anytime when I need help.	(Dykstra & de Jong Gierveld, 2004)
Insecure-Anxious Attachment	IAA1	I feel that my partner does not desire the same level of closeness in the relationship.	(Rippé et al., 2023)
Insecure-Anxious Attachment	IAA2	My desire for closeness sometimes scares others.	(Rippé et al., 2023)
Insecure-Anxious Attachment	IAA3	I feel frustrated when my partner is not there when needed.	(Rippé et al., 2023)
Insecure-Anxious Attachment	IAA4	I feel anxious when my partner's level of care is lower than mine.	(Rippé et al., 2023)
Income Security	IS1	I am confident that my income will not decrease in the near future.	(Chatterjee et al., 2019)
Income Security	IS2	I am confident that I can recover financially quickly after losing a job or business.	(Chatterjee et al., 2019)
Income Security	IS3	I can always earn enough income to support my family.	(Chatterjee et al., 2019)
Income Security	IS4	I am confident that I will not lose my job (or business).	(Chatterjee et al., 2019)
Income Security	IS5	I have a stable source of income.	(Chatterjee et al., 2019)
Income Security	IS6	I earn enough income to meet my future needs.	(Chatterjee et al., 2019)
Financial Well-Being	FWB1	If I lost my job today, I could still cover my expenses until I find a new one.	(Lone & Bhat, 2022)
Financial Well-Being	FWB2	I regularly manage to save a portion of my income.	(Lone & Bhat, 2022)
Financial Well-Being	FWB3	I feel that my savings provide security for my long-term financial condition.	(Lone & Bhat, 2022)
Financial Well-Being	FWB4	Poor financial conditions make me feel that it is impossible to achieve what I want in life.	(Lone & Bhat, 2022)

Variables	Items	Question	Reference
Financial Well-Being	FWB5	I include available credit limits as emergency funds when planning my budget.	(Lone & Bhat, 2022)

Note: The social loneliness items are positively worded and were reverse-coded during data analysis in accordance with the original measurement scale proposed by (Dykstra & de Jong Gierveld, 2004).

4. Results and Discussions

The respondents in this study consisted of 400 participants, as shown in Table 2 . Based on the gender, the majority were female (87.5%), while male respondents accounted for 12.5%. This imbalance may be attributed to the higher willingness of female participants to engage in survey-based research, particularly on topics related to psychological and financial well-being. Previous studies have shown that women tend to be more participative in self-report surveys and more open in expressing personal experiences compared to men (Becker, 2022). In terms of age, most respondents were classified as Generation Z (79.5%), followed by Millennials (13%) and Generation X (7.5%). This distribution is likely influenced by the online data collection method, as younger individuals tend to have higher digital skills and more active technology use (Van, Jansen, & Van, 2021) , making them more likely to engage in online environments, including survey participation. Regarding the highest level of education, most participants held a bachelor's degree (60%). This may indicate that individuals with higher educational attainment may have greater awareness of financial-related issues acccording to Morgan and Long (2020), which increases their likelihood of participating in academic research.

Table 2. Respondent characteristics (quantitative data)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	50	12.5
	Female	350	87.5
Age	Generation Z (17-28 years)	318	79.5
	Millennials (29-44 years)	52	13
	Generation X (45-60 years)	30	7.5
Educational Level	Senior High School (SMA/SMK)	135	33.8
	Diploma (D1/D2/D3)	11	2.8
	Bachelor Degree (S1)	240	60
	Master/Doctoral Degree (S2/S3)	14	3.5
Employment Status	Private Sector Employee	228	57
	Government Employee	66	16.5
	Entrepreneur	106	26.5
	Unemployed	0	0
Income Level	≤ 5.000.000,00	167	41.8
	5.000.000,00 - 10.000.000,00	179	44.8
	10.000.001,00 - 15.000.000,00	41	10.3
	15.000.001,00 - 20.000.000,00	10	2.5
	≥ 20.000.000,00	3	0.7
	No Income	0	0

Most respondents worked in the private sector (57%), followed by business owners (26.5%) and government workers (16.5%). None were unemployed. This shows that the group mostly includes people who are working, since job status is closely linked to financial health (To, Gao, & Leung, 2020). Looking at monthly income, most earned between IDR 5,000,001 and IDR 10,000,000

(44.8%), with many earning IDR 5,000,000 or less (41.8%). This means most respondents come from lower- to middle-income groups, who might be more focused on money-related concerns.

Table 3. Respondent characteristics (supplementary interview insights)

Code	Age	Gender	Generation	Occupation	Income Level	Key Insight
R1	21	Male	Generation Z	Purchasing Staff	Low-Medium	Reports that financial uncertainty influences his emotional well-being and social interactions.
R2	32	Female	Millennials	Accounting Staff	Medium	Feels that greater income security contributes to stronger social connectedness and overall well-being.
R3	56	Male	Generation X	Culinary Business Owner	Medium-High	Emphasizes that financial stability supports life satisfaction and helps maintain meaningful social relationships.

The information about the participants in this study is shown in Table 3. To incorporate a range of perspectives based on age, three volunteers were selected to represent various age groups. Additionally, their varied occupations and income levels contributed to a more comprehensive understanding of their financial and social experiences. These supplementary insights illustrate how financial security and well-being may influence social connectedness and experiences of social loneliness across individuals from different generations. The results of the Partial Least Square (PLS) model analysis and the relationships among the studied variables are presented in Figure 2.

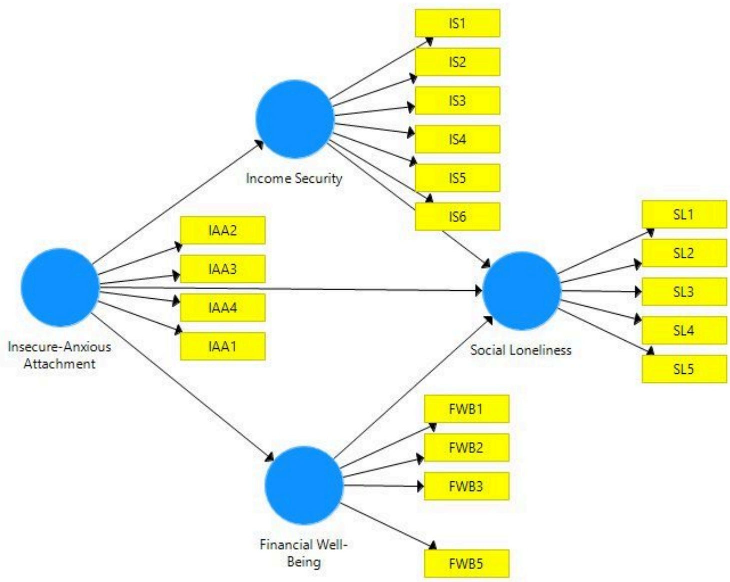

Figure 2. Partial Least Square (PLS) model

In the initial measurement model evaluation, FWB4 was found to have a loading factor below the recommended threshold and was therefore removed to improve the quality and validity of the measurement model. Following the indicator removal, the measurement model was re-estimated using

SmartPLS and assessed based on Cronbach Alpha, Composite Reliability, and Average Variance Extracted (AVE) to confirm construct reliability and convergent validity.

4.1 Convergent Validity

Convergent validity was employed to assess the degree to which indicators converge in measuring their respective constructs. Indicators are considered to demonstrate strong convergent validity when their outer loadings values exceed 0.70 (Hair & Alamer, 2022). In this study, the outer loading values for each indicators across all research variables are presented in Table 4.

Table 4. Outer loadings

Variables	Indicator	Outer Loading	Remarks
Social Loneliness	SL1	0.907	Valid
	SL2	0.917	Valid
	SL3	0.905	Valid
	SL4	0.897	Valid
	SL5	0.900	Valid
Insecure-Anxious Attachment	IAA1	0.847	Valid
	IAA2	0.851	Valid
	IAA3	0.739	Valid
	IAA4	0.730	Valid
Income Security	IS1	0.873	Valid
	IS2	0.867	Valid
	IS3	0.909	Valid
	IS4	0.885	Valid
	IS5	0.901	Valid
	IS6	0.920	Valid
Financial Well-Being	FWB1	0.913	Valid
	FWB2	0.929	Valid
	FWB3	0.917	Valid
	FWB5	0.904	Valid

Table 5. Average Variance Extracted (AVE)

Variables	AVE	Remarks
Social Loneliness	0.820	Valid
Insecure-Anxious Attachment	0.630	Valid
Income Security	0.797	Valid
Financial Well-Being	0.839	Valid

Rohani, Tan, and Anggraini (2026) suggested that the AVE value should exceed the recommended minimum threshold of 0.50 to establish adequate convergent validity. As presented in Table 5, all constructs in this study achieved AVE values above this threshold, indicating that each construct sufficiently explains the variance of its indicators and confirming the adequacy of the measurement model.

4.2 Discriminant Validity

Table 6. Fornell-Lacker

	Financial Well-Being	Income Security	Insecure-Anxious Attachment	Social Loneliness
Financial Well-Being	0.916			

	Financial Well-Being	Income Security	Insecure-Anxious Attachment	Social Loneliness
Income Security	0.888	0.893		
Insecure-Anxious Attachment	-0.501	-0.447	0.794	
Social Loneliness	-0.850	-0.819	0.432	0.905

The Fornell-Larcker criterion was used to check discriminant validity among the variables. This method considers a construct valid if the square root of its Average Variance Extracted (AVE) is greater than its correlations with other constructs in the model. As shown in Table 6, each construct's AVE square root is higher than its correlations with other constructs. Financial well-being, income security, insecure-anxious attachment, and social loneliness all show stronger relationships within their own constructs than with others. These results confirm that each construct has a clear and sufficient level of discriminant validity.

4.3 Composite Reliability

Table 7. Composite Reliability

Variable	Value	Remarks
Social Loneliness	0.958	Reliable
Insecure-Anxious Attachment	0.871	Reliable
Income Security	0.939	Reliable
Financial Well-Being	0.954	Reliable

The results of the Composite Reliability test, as presented in Table 7, show that all constructs have values above the recommended threshold of 0.70 (Hair & Alamer, 2022). Social Loneliness, Insecure-Anxious Attachment, Income Security, and Financial Well-Being all demonstrate high composite reliability values, indicating strong internal consistency among the indicators of each construct. Therefore, it can be concluded that all constructs in this study are reliable.

4.4 Cronbach's Alpha

Table 8. Cronbach's Alpha

Variables	Value	Remarks
Social Loneliness	0.945	Reliable
Insecure-Anxious Attachment	0.805	Reliable
Income Security	0.949	Reliable
Financial Well-Being	0.936	Reliable

The results of Cronbach Alpha, as shown in Table 8, indicate that all constructs exceed the minimum acceptable value of 0.70 (Hair & Alamer, 2022). Social Loneliness, Insecure-Anxious Attachment, Income Security, and Financial Well-Being demonstrate good internal consistency reliability. These findings confirm that the measurement instruments used in this study are consistent and reliable in measuring each construct.

4.5 Coefficient of Determination (R2)

Table 9. R-Square (R2)

Variables	R2 Value	Explanatory Power
Financial Well-Being	0.251	Weak
Income Security	0.200	Weak
Social Loneliness	0.742	Substantial

Table 9 shows the results for the coefficient of determination (R-Square), which measures how well the model predicts the endogenous variables. The R^2 value shows how much of the variance in these variables is explained by the exogenous variables (Pinandito & Muafi, 2025). Social loneliness has an R^2 value of 0.742, indicating substantial explanatory power, with 74.2% of its variance explained by the model, while the remaining 25.8% is explained by other factors. Financial well-being has an R^2 value of 0.251, indicating weak explanatory power, with 25.1% of its variance explained by the model. Meanwhile, income security has an R^2 value of 0.200, also indicating weak explanatory power, with 20.0% of its variance explained by the model. Overall, the model demonstrates substantial explanatory power for social loneliness, while its explanatory power for financial well-being and income security remains weak.

4.6 f-Square

Table 10. f-Square

Relationship	f2 Value	Effect Size
Insecure-Anxious Attachment → Financial Well-Being	0.335	Medium Effect
Insecure-Anxious Attachment → Income Security	0.250	Medium Effect
Financial Well-Being → Social Loneliness	0.257	Medium Effect
Income Security → Social Loneliness	0.075	Small Effect
Insecure-Anxious Attachment → Social Loneliness	0.000	No Effect

Table 10 presents the effect sizes (f^2) of each factor on the endogenous variables. Financial well-being has a medium effect on social loneliness ($f^2 = 0.257$), while income security has a small effect ($f^2 = 0.075$). Insecure-anxious attachment has no effect on social loneliness ($f^2 = 0.000$). Meanwhile, insecure-anxious attachment has a medium effect on financial well-being ($f^2 = 0.335$) and a medium effect on income security ($f^2 = 0.250$). Overall, financial well-being has the strongest effect on social loneliness in this model.

4.7 Hypotheses Testing Results

Table 11. Direct fffect test result

Variable Relationship	Coefficient	T-Statistic	P-Value	Conclusion
IAA → IS	-0.447	12.275	0.000	Hypothesis 1 Accepted
IS → SL	-0.303	3.375	0.000	Hypothesis 2 Accepted
IAA → FWB	-0.501	14.408	0.000	Hypothesis 3 Accepted
FWB → SL	-0.578	6.268	0.000	Hypothesis 4 Accepted
IAA → SL	0.007	0.208	0.835	Hypothesis 5 Rejected

The results of hypothesis testing are presented through direct and indirect effect analyses. The direct effects among the constructs are shown in Table 11, while the indirect effects examining the mediating relationships are presented in Table 12 .

Table 12. Indirect effect test result

Variable Relationship	Coefficient	T-Statistic	P-Value	Conclusion
IAA → IS → SL	0.135	3.112	0.000	Hypothesis 6 Accepted
IAA → FWB → SL	0.290	5.872	0.002	Hypothesis 7 Accepted

4.7.1 The Effect of Insecure-Anxious Attachment on Income Security

The results show that insecure-anxious attachment has a significant negative effect on income security ($\beta = -0.447$, $p < 0.001$), supporting H_1. This finding indicates that individuals with higher levels of insecure-anxious attachment tend to experience lower confidence in their income stability. This finding is consistent with previous studies suggesting that emotional instability associated with insecure-anxious attachment can reduce confidence in managing financial resources (Li, Emery, & Lee, 2025; Smith, & Eng, 2024). In addition, individuals with higher anxiety tend to experience financial uncertainty and difficulty maintaining stable financial behavior (Chai, Wang, & Lu, 2025; Segal, Mikulincer, Hershkovitz, Meir, Nagar, & Maaravi, 2023; Warnock, Ju, & Katz, 2024). From the perspective of Attachment Theory, chronic emotional instability and excessive worry characteristics of insecure-anxious attachment impair individuals' ability to objectively assess their financial situation, generating persistent feelings of insecurity even when objective conditions are stable. Self-Determination Theory further explains that this emotional dysregulation undermines perceived competence and autonomy in financial decision-making, both of which are essential for maintaining a stable sense of income security. Interview insights provide additional explanation, respondent 2 reported feeling financially insecure despite having a stable income, due to concerns about unexpected financial risks. Respondent 1 also stated that anxiety about future uncertainty made them hesitant to make long-term financial plans. Meanwhile, Respondent 3 explained that emotional instability affected their financial decision-making, leading to uncertainty about income sustainability. These findings indicate that insecure-anxious attachment influences income security through psychological mechanisms.

4.7.2 The Effect of Income Security on Social Loneliness

The results indicate that income security has a significant negative effect on social loneliness ($\beta = -0.303$, $p < 0.001$), supporting H_2. This finding suggests that individuals who perceive their income as stable and secure tend to experience lower levels of social loneliness. Income security may provide individuals with greater financial predictability, allowing them to manage daily responsibilities with less financial concern and maintain greater engagement in social life. This finding is consistent with Shin, Jyung, Choi, and Sul (2023), who found that greater financial stability is associated with better emotional well-being, which may support individuals in maintaining meaningful social relationships. Similarly, lower income security has been associated with a greater risk of loneliness according to Beller (2024), while higher income levels are associated with lower levels of loneliness across demographic groups (Taylor, Chen, Tsuchiya, Cudjoe, Qin, Nguyen, & Roy, 2024). The finding is further supported by (Barjaková, & Garnero, 2023; Egaña-Marcos, Collantes, Diez-Solinska, & Azkona, 2025), who found that favorable financial conditions are associated with better mental well-being and greater social participation across different countries and age groups. Zuo, Lin, Chen, Wang, Tian, Li, and Xu (2023) also identified stable financial conditions as a protective factor against social loneliness by supporting individuals' social engagement and independence. From the perspective of Self-Determination Theory, income security may support individuals' need for autonomy and competence by providing greater control over daily financial decisions and reducing uncertainty. From the perspective of Attachment Theory, greater income security may also function as a contextual resource that reduces financial insecurity, potentially allowing individuals to engage in social relationships with greater psychological comfort. The interview findings provide further support for this relationship. R1 reported that financial uncertainty affected his emotional well-being and social interactions, indicating that unstable financial conditions may create barriers to social engagement. Meanwhile, R2 stated that greater income security contributed to stronger social connectedness and overall well-being. These responses suggest that income security may influence social loneliness not simply through the amount of income received, but through the sense of stability and reduced financial pressure associated with having a predictable financial condition.

4.7.3 The Effect of Insecure-Anxious Attachment on Financial Well-Being

The results show that insecure-anxious attachment has a significant negative effect on financial well-being ($\beta = -0.501$, $p < 0.001$), supporting H3. This implies that individuals with higher levels of anxiety are more likely to experience lower financial well-being. This finding is supported by previous studies showing that emotional distress and financial anxiety can lead to maladaptive financial behaviors and difficulties in managing financial conditions (Joseph & Peetz, 2024; Li et al., 2023). In addition, emotional instability may reduce individuals' confidence in handling financial responsibilities and long-term planning (Smith & Eng, 2024), while increased stress and negative perceptions toward financial situations can further weaken financial resilience (El Murr et al., 2026; Tammilehto et al., 2023). According to Attachment Theory, the chronic hyperactivation of emotional distress associated with insecure-anxious attachment manifests in the financial domain as excessive worry, negative financial appraisal, and reduced capacity for effective financial planning, all of which erode financial well-being over time. The interview insights further support this. Respondent 1 reported experiencing financial stress despite having sufficient income due to concerns about unexpected expenses. Respondent 2 also mentioned difficulties in maintaining financial savings because of anxiety about future uncertainty, while respondent 3 explained that emotional instability affected their financial planning. These findings suggest that insecure-anxious attachment reduces financial well-being through increased financial anxiety and emotional instability.

4.7.4 The Effect of Financial Well-Being on Social Loneliness

Financial well-being has a significant negative effect on social loneliness ($\beta = -0.578$, $p < 0.001$), supporting H4. The relatively strong negative coefficient suggests that financial well-being is an important factor associated with social loneliness among the respondents. Rather than indicating that financial resources directly create social connections, this finding suggests that greater financial well-being may reduce the financial pressures that can interfere with individuals' social engagement. This is consistent with Veeroja et al. (2023), who found that better financial conditions are associated with greater psychological well-being, which can support individuals in maintaining social relationships. Adequate savings and liquid assets may also provide greater flexibility to remain socially engaged during financial uncertainty (Bialowolski et al., 2024; Drost et al., 2025). From the perspective of Self-Determination Theory, financial well-being may support individuals' needs for autonomy and competence by increasing their perceived control over financial responsibilities and daily life. This psychological security may provide greater capacity to engage in social relationships. In contrast, financial strain can increase stress and anxiety, reducing emotional resources for social interaction and participation in social activities (Chai et al., 2025). Persistent financial instability may further create uncertainty that makes it difficult to establish and maintain meaningful relationships (Bierman et al., 2024). From the perspective of Attachment Theory, financial stability may also function as a contextual resource that reduces insecurity and enables individuals to feel more secure when engaging with others. The interview findings support this interpretation. R1 reported that financial uncertainty affected his emotional well-being and social interactions, suggesting that financial concerns can become a barrier to social engagement, while R3 emphasized that financial stability supported life satisfaction and helped maintain meaningful social relationships. Therefore, the relatively strong negative effect found in this study suggests that financial well-being is an important contributor to social loneliness.

4.7.5 The Effect of Insecure-Anxious Attachment on Social Loneliness

Insecure-anxious attachment does not have a significant direct effect on social loneliness ($\beta = 0.007$, $p = 0.835$), leading to the rejection of H5. Although insecure-anxious attachment was hypothesized to have a positive effect on social loneliness, the results show that the effect is not statistically significant. This suggests that the relationship may not be direct. Borawski et al. (2022) and Saladino et al. (2024), found that this relationship is often indirect and influenced by factors such as emotional intelligence or dysregulation. According to Attachment Theory, people with anxious attachment usually seek closeness instead of avoiding relationships, which can help protect them from feeling lonely. Self-Determination Theory also suggests that the basic need for connection keeps people socially engaged, even when they feel anxious. The interview findings support this idea. Respondent 2 reported that although they often feel anxious in relationships, they still actively maintain friendship and seek reassurance through communication with close friends. Respondent 1 stated that despite feeling worried about how others perceive them, they continue to engage in social interactions and participate in social activities. These interview responses may suggest that individuals with insecure-anxious attachment may continue to seek closeness and emotional reassurance rather than withdraw completely from social relationships. Therefore, insecure-anxious attachment may not directly increase social loneliness but may influence it indirectly through other factors, such as financial conditions or psychological well-being.

4.7.6 The Effect of Insecure-Anxious Attachment on Social Loneliness Mediated by Income Security

Income security significantly mediates the relationship between insecure-anxious attachment and social loneliness ($\beta = 0.135$, $p < 0.001$), supporting H_6. The direct effect of insecure-anxious attachment on social loneliness was not significant ($\beta = 0.007$, $t = 0.208$, $p = 0.835$), while the indirect effect through income security was significant. Therefore, income security fully mediates the relationship between insecure-anxious attachment and social loneliness. This indicates that individuals with higher insecure-anxious attachment tend to perceive lower income security, which subsequently contributes to greater social loneliness rather than producing a direct effect. This finding suggests that emotional instability, financial uncertainty, and difficulties in maintaining financial stability associated with insecure-anxious attachment may reduce individuals' perceived income security (Li, Curran, LeBaron-Black, Jorgensen, Yorgason, & Wilmarth, 2023; Li, Khan, Kuelz, & Zhao, 2025; Smith, & Eng, 2024). Lower income security may then increase financial concerns and limit individuals' ability or willingness to participate in social activities, potentially contributing to greater social loneliness (Bryan, Thompson, Goldman-Mellor, Moffitt, Odgers, & So, 2024; Sarkar, Arakelyan, Choa, & Poghosyan, 2023). From the perspective of Attachment Theory, heightened worry and sensitivity to uncertainty may extend to perceptions of financial stability, while Self-Determination Theory suggests that greater income security may support autonomy and competence by providing individuals with greater control over their financial conditions. The interview findings also support this interpretation, as Respondent 1 reported that financial uncertainty limited participation in social activities, while Respondent 2 explained that financial concerns influenced their social involvement.

4.7.7 The Effect of Insecure-Anxious Attachment on Social Loneliness Mediated by Financial Well-Being

Financial well-being significantly mediates the relationship between insecure-anxious attachment and social loneliness ($\beta = 0.290$, $p = 0.002$), supporting H_7. The direct effect of insecure-anxious attachment on social loneliness was not significant ($\beta = 0.007$, $t = 0.208$, $p = 0.835$), while the indirect effect through financial well-being was significant. Therefore, financial well-being fully mediates the relationship between insecure-anxious attachment and social loneliness. This indicates that individuals with higher insecure-anxious attachment tend to experience lower financial well-being, which subsequently contributes to greater social loneliness rather than producing a direct effect. This finding suggests that emotional instability and financial anxiety associated with insecure-anxious attachment may weaken individuals' confidence in managing their financial conditions (Doostdari et al., 2024; Eilert & Buchheim, 2023; Miccoli et al., 2025; Sagone et al., 2023). Lower financial well-being may then create financial pressure and psychological discomfort that reduce social engagement (Drost et al., 2025; Smith & Eng, 2024). Over time, reduced social interaction may contribute to increased feelings of loneliness. From the perspective of Attachment Theory, heightened worry and sensitivity to uncertainty may extend to financial situations, while Self-Determination Theory suggests that lower financial well-being may limit the fulfilment of autonomy and competence needs. The interview findings also support this interpretation, as Respondent 1 reported that financial strain reduced time for social engagement, while Respondent 3 experienced greater stress and discomfort in social situations due to financial worries.

5. Conclusions

5.1 Conclusion

This study examined the relationship between Insecure-Anxious Attachment (IAA) and Social Loneliness (SL), with Income Security (IS) and Financial Well-Being (FWB) as mediating variables. The results showed that IAA had no significant direct effect on SL ($\beta = 0.007$, $p = 0.835$), but had significant negative effects on IS ($\beta = -0.447$, $p < 0.001$) and FWB ($\beta = -0.501$, $p < 0.001$). In turn, IS and FWB were negatively related to SL ($\beta = -0.303$ and $\beta = -0.578$, respectively, $p < 0.001$). Both indirect effects were significant through IS ($\beta = 0.135$, $p < 0.001$) and FWB ($\beta = 0.290$, $p = 0.002$).

These findings indicate that the relationship between IAA and SL is mainly explained through financial conditions rather than a direct relationship. Individuals with higher IAA tended to report lower financial security and well-being, which were associated with higher social loneliness. Thus, the findings suggest that financial conditions provide an important link between psychological vulnerability and social loneliness, highlighting the need to consider psychological and financial factors together when understanding social loneliness.

5.2 Research Limitations

There are several restrictions on this research. First, the study's findings may not be as applicable to other areas or groups with various socioeconomic and cultural backgrounds because it only included respondents with income in Batam City. People experiences with income security, financial well-being and social loneliness may change depending on the economic situations, social settings, and lifestyle variations in other areas. Second, only income security and financial well-being were examined as mediating factors in this study. The research model did not include for other potential factors that could contribute to social loneliness. The results might not fully reflect the complexity of the problem as a result.

5.3 Suggestions and Directions for Future Research

Future research could examine whether the mediating role of income security and financial well-being remains consistent in other populations and geographical areas. Studies involving individuals with different income levels, employment backgrounds, and socioenonomic conditions may provide a broader understanding of the financial pathway identified in this study. Future researchers could also include additional mediating variables, particularly social support, work-life balance, relationship quality, and psychological well-being. Examining these variables alongside financial factors may help determine whether financial conditions represent one of several mechanisms through which insecure-anxious attachment is related to social loneliness. In addition, longitudinal research is recommended to examine the development of attachment, financial conditions, and social loneliness over time and to provide stronger evidence regarding the direction of their relationships.

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Author Contributions

DK contributed to the conceptualization, methodology, data collection, data analysis, and manuscript preparation. DF contributed to the literature review, development of the theoretical framework, data interpretation, and manuscript review. CC contributed to methodology validation, supervision, critical revision, and final approval of the manuscript. All authors contributed to the study and approved the final version of the manuscript.

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