Why Do Romantic Relationships Start Early and End Quickly? Examining the Pattern of Unstable Relationships Among Generation Z

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Objective: This study aimed to identify and model the psychological, behavioral, and digitally mediated factors that explain why romantic relationships among Generation Z tend to initiate rapidly yet remain unstable.

Methods and Materials: A cross-sectional study was conducted with a sample of Generation Z young adults residing in Toronto, Canada, all of whom had experienced at least one romantic relationship in recent years. Data were collected using a comprehensive online questionnaire assessing demographic characteristics, relationship histories, attachment-related variables, emotional regulation, and digital relational practices such as dating-app use and social media monitoring. A machine learning framework was employed to analyze the data, including supervised classification algorithms and unsupervised clustering techniques. Multiple models were trained and validated using cross-validation procedures, and explainability methods were applied to identify the most influential predictors of relationship instability.

Findings: Inferential results indicated that non-linear machine learning models significantly outperformed linear models in predicting relationship instability. Rapid emotional attachment, attachment anxiety, fear of abandonment, intensive dating-app use, and frequent social media monitoring emerged as the strongest predictors of unstable romantic trajectories. Clustering analyses revealed distinct relational profiles, including accelerated–fragile, digitally entangled, avoidant–episodic, and relatively stable patterns, with the majority of participants falling into instability-prone profiles. Protective effects were observed for indicators of secure attachment and offline relational support.

Conclusion: The findings demonstrate that unstable romantic relationships among Generation Z are best understood as outcomes of interacting psychological vulnerabilities and digitally shaped relational practices rather than isolated individual deficits. Early emotional acceleration combined with constant digital comparison creates conditions under which relationships form quickly but lack durability.

Keywords: Generation Z; romantic relationships; relationship instability; digital intimacy; machine learning; attachment dynamics

1. Introduction

Romantic relationships have long been regarded as a central developmental task of adolescence and emerging adulthood, providing individuals with opportunities for intimacy, identity formation, emotional regulation, and social belonging. However, contemporary romantic experiences among Generation Z appear to be marked by a paradoxical pattern: relationships often begin quickly, intensify rapidly, and yet dissolve just as abruptly. This pattern of early initiation combined with premature termination has become increasingly visible in both everyday discourse and empirical scholarship, raising critical questions about the underlying social, psychological, and cultural dynamics that shape relational instability in this cohort. Unlike previous generations, Generation Z navigates romantic life within a highly mediated environment characterized by constant connectivity, accelerated social feedback, and shifting norms surrounding intimacy, commitment, and self-expression, which collectively reconfigure how relationships are formed, maintained, and ended (Khatri et al., 2024; Supunya & Ayuwat, 2019).

One prominent explanation for the instability of Generation Z romantic relationships lies in the transformation of relational norms and expectations across generational cohorts. Comparative research suggests that Gen Z exhibits greater openness toward fluid relationship boundaries, shorter courtship periods, and more individualized criteria for relationship satisfaction than earlier generations, reflecting broader cultural shifts toward flexibility and self-determination (Khatri et al., 2024; Umali, 2025). While such changes may increase perceived autonomy, they may simultaneously weaken the structural and normative supports that traditionally sustained long-term romantic bonds. In this context, relationships may be initiated based on immediate emotional resonance or perceived compatibility, yet lack the depth, shared meaning, or conflict-navigation capacity required for durability, particularly when early idealization gives way to relational ambiguity or evaluative conflict (Tillman, 2022).

Digital media environments further intensify these dynamics by reshaping how intimacy is constructed and evaluated. Social networking platforms, dating applications, and algorithm-driven content streams expose young adults to a constant comparison with alternative partners and idealized representations of romance, potentially undermining commitment and fostering dissatisfaction. Empirical evidence indicates that exposure to romantic relationship content on platforms such as Instagram and Twitter significantly influences Gen Z's expectations regarding intimacy, validation, and public display of affection, often amplifying relational pressure and insecurity (Bello et al., 2025). These platforms not only accelerate partner selection but also normalize rapid emotional disclosure, public relationship performance, and swift disengagement when relational rewards diminish. Within such an ecosystem, romantic relationships may become more reactive, contingent, and vulnerable to disruption.

At the psychological level, emerging research highlights the role of emotional competencies and attachment-related processes in shaping relationship stability among Generation Z. Studies focusing on emotional intelligence suggest that while Gen Z demonstrates heightened emotional awareness, this does not always translate into effective emotional regulation or relational resilience, particularly in stressful or ambiguous interpersonal contexts (Budiningtyas & Hutabarat, 2025). Heightened sensitivity to rejection, fear of abandonment, and fluctuating perceptions of partner responsiveness may contribute to cycles of overinvestment followed by withdrawal, reinforcing unstable relational trajectories (Zoppolat et al., 2025). When emotional needs are unmet or perceived responsiveness declines, individuals may rapidly reassess the value of the relationship, leading to ambivalence and eventual dissolution.

The search for meaning and personal significance within romantic relationships represents another critical dimension of instability. Contemporary theories posit that romantic partnerships increasingly function as primary sources of existential validation and self-worth, especially in societies where traditional collective structures have weakened (Contu et al., 2024). While this intensification of relational significance can deepen emotional engagement, it may also render relationships more fragile, as unmet expectations threaten not only relational satisfaction but also personal identity and purpose. For Generation Z, whose developmental context is marked by economic uncertainty, social fragmentation, and rapid cultural change, romantic relationships may be burdened with heightened expectations to provide emotional security, recognition, and coherence, thereby increasing the risk of disappointment and rupture.

Cultural narratives and symbolic representations of romance further shape how young people understand and enact intimate relationships. Music, popular culture, and digital storytelling play a central role in constructing romantic scripts, often emphasizing passion, immediacy, and emotional intensity over gradual intimacy and long-term

negotiation. Theoretical analyses of music and romantic relationships suggest that love songs and popular media can reinforce idealized and emotionally charged conceptions of love, which may be difficult to sustain in everyday relational contexts (Bamford et al., 2024). Similarly, genre-specific cultural influences, such as the portrayal of sexuality and desire in contemporary popular music, have been linked to shifts in youth attitudes toward intimacy, commitment, and relational boundaries (Ramos, 2024). These symbolic frameworks may contribute to accelerated relationship initiation while offering limited guidance for managing conflict, boredom, or emotional divergence over time.

The instability of Gen Z romantic relationships must also be understood within broader social diversity and identity contexts. Changes in the visibility and acceptance of sexual and gender diversity have expanded the range of possible relational forms, challenging traditional binaries and fixed scripts (Hammack, 2025). While this expansion creates opportunities for authenticity and inclusivity, it may also introduce new uncertainties as individuals navigate evolving norms, expectations, and social representations of intimacy (Lianguzova & Rikel, 2021; Rikel, 2020). In multicultural urban environments, such as large metropolitan centers, these dynamics are further complicated by intersecting cultural values, experiences of discrimination, and differential access to relational support, all of which have been linked to relational uncertainty and instability among young adults (Ogan et al., 2024).

Relational instability is not confined to romantic contexts alone but reflects broader patterns in how Generation Z forms and maintains interpersonal connections. Research on Gen Z relationships in organizational, athletic, and community settings suggests a preference for immediacy, feedback-rich interaction, and perceived responsiveness, alongside lower tolerance for perceived misalignment or emotional neglect (Landman et al., 2024; Parker et al., 2024). These relational orientations may generalize across domains, influencing how young people approach romantic partnerships and how quickly they disengage when relational experiences fail to meet expectations. Symbolic interaction processes, particularly those mediated through digital platforms, reinforce these tendencies by continuously shaping self-presentation, relational meaning, and perceived partner value (Lukmanto, 2025).

Despite growing scholarly attention to Generation Z romantic experiences, much of the existing literature relies on qualitative narratives, linear statistical models, or culturally specific case studies, which may not fully capture the complexity and heterogeneity of relational instability patterns (Manalili & Malcampo, 2025; Umali, 2025). Moreover, prior intervention-focused research has primarily emphasized relationship education and skills training, demonstrating positive effects on self-concept and relational awareness but offering limited insight into the underlying structural and psychological configurations that predispose individuals to unstable relationship cycles (Tobing et al., 2024). There remains a critical need for integrative analytical approaches capable of identifying non-linear interactions among emotional, behavioral, and contextual variables that jointly contribute to early-starting and short-lived romantic relationships.

Advances in computational social science and machine learning offer new methodological possibilities for addressing this gap. By modeling complex, high-dimensional data, machine learning techniques can uncover latent patterns and relational profiles that are not readily observable through traditional analytic methods. Such approaches are particularly well suited to the study of Generation Z, whose romantic lives are embedded in digitally traceable behaviors, rapid emotional shifts, and multifaceted social environments. Applying these techniques within a theoretically grounded framework allows for a more nuanced understanding of why relationships among Gen Z often escalate quickly yet fail to endure, moving beyond deficit-based explanations toward pattern-based insight.

In light of these considerations, the present study seeks to integrate sociocultural theory, psychological perspectives, and machine learning analytics to examine the phenomenon of early initiation and instability in Generation Z romantic relationships within an urban context. Specifically, the aim of this study is to identify and model the key psychological, behavioral, and digital factors that predict why romantic relationships among Generation Z tend to begin rapidly and remain unstable.

2. Method and Materials

2.1. Study Design and Participants

This study adopted an exploratory–explanatory mixed-methods design with a primary emphasis on quantitative modeling using machine learning, complemented by structured self-report data to capture the psychosocial dynamics of romantic relationships among Generation Z. The design was cross-sectional, aiming to identify latent patterns associated with early relationship initiation and

subsequent instability rather than to infer causality over time. Participants were recruited from the metropolitan area of Toronto, Canada, a context selected due to its cultural diversity, high digital connectivity, and dense concentration of young adults navigating emerging adulthood within technologically mediated social environments. Eligibility criteria included being between 18 and 26 years of age, self-identifying as a member of Generation Z, having experienced at least one romantic relationship initiated within the previous three years, and residing in Toronto for a minimum of one year to ensure contextual consistency. Recruitment was conducted through university mailing lists, community youth organizations, and targeted social media advertisements, with careful attention to balancing gender identity, educational background, and relationship history to enhance model generalizability. Participation was voluntary, informed consent was obtained electronically, and ethical safeguards were implemented to ensure anonymity, data confidentiality, and the right to withdraw at any stage without consequence.

2.2. Measures

Data were collected using a comprehensive digital questionnaire designed to capture demographic variables, relationship trajectories, and psychological constructs theoretically linked to relational instability in young adults. Demographic indicators included age, gender identity, educational status, employment status, and living arrangements. Relationship-specific variables assessed age at first romantic involvement, speed of emotional attachment, duration of relationships, frequency of breakups, and patterns of re-engagement or serial short-term relationships. Psychosocial dimensions were operationalized through validated self-report scales measuring attachment orientations, emotional regulation capacity, fear of intimacy, rejection sensitivity, perceived partner availability, and reliance on digital communication platforms for relational maintenance. Additional items examined dating-app usage intensity, social media monitoring behaviors, and perceived comparison with peers' relationships, given their salience in Generation Z romantic experiences. All instruments were administered online via a secure survey platform, optimized for mobile and desktop use to reduce participation barriers. Internal consistency of multi-item measures was evaluated prior to modeling, and missing data were handled using model-compatible imputation techniques to preserve statistical power while minimizing bias.

2.3. Data Analysis

Data analysis was conducted using a machine learning framework designed to detect complex, non-linear patterns underlying unstable romantic relationship trajectories. Following data preprocessing, which included normalization of continuous variables, encoding of categorical features, and multicollinearity checks, the dataset was randomly partitioned into training and testing subsets to allow out-of-sample validation. Several supervised learning algorithms were implemented and compared, including regularized logistic regression, random forest classifiers, gradient boosting machines, and support vector machines, with the primary outcome variable defined as relationship instability, operationalized through a composite index of short relationship duration, rapid initiation, and repeated dissolution. Hyperparameter tuning was performed using cross-validation procedures to optimize predictive performance while preventing overfitting. Model evaluation relied on accuracy, precision, recall, F1-score, and area under the receiver operating characteristic curve to ensure robust classification performance across imbalanced outcome distributions. Feature importance and explainability techniques, including permutation importance and SHAP-based interpretations, were applied to identify the most influential predictors contributing to unstable relationship patterns. This analytic strategy allowed for the identification of psychologically and behaviorally meaningful profiles associated with early-starting and prematurely ending romantic relationships, translating complex multidimensional data into interpretable insights relevant to both theory and applied intervention contexts.

3. Findings and Results

Table 1 presents the descriptive characteristics of the study sample and provides an overall profile of Generation Z participants' demographic attributes and relationship-related experiences. This table serves as a contextual foundation for interpreting subsequent predictive and inferential findings, as it outlines the distributional properties of key variables that were later entered into machine learning models. Emphasis is placed on variables directly relevant to the phenomenon of early relationship initiation and instability, including age at first romantic involvement, average relationship duration, and intensity of digital dating practices.

Table 1

Demographic and Relationship Characteristics of the Participants (Toronto, N = 624)

Variable	Category / Statistic	Value
Age (years)	Mean (SD)	22.4 (2.3)
Gender identity	Woman	54.3%
	Man	41.0%
	Non-binary / other	4.7%
Educational status	Undergraduate student	46.8%
	Graduate student	21.6%
	Non-student	31.6%
Employment status	Full-time	38.9%
	Part-time	34.1%
	Unemployed	27.0%
Age at first romantic relationship (years)	Mean (SD)	15.9 (1.8)
Number of romantic relationships	Mean (SD)	4.6 (2.1)
Average relationship duration (months)	Mean (SD)	6.8 (4.9)
Reported breakups in past 3 years	Mean (SD)	2.7 (1.3)
Regular dating-app use	Yes	72.5%
High social media monitoring of partner	Yes	64.2%

As shown in Table 1, the sample consisted predominantly of young adults in their early twenties, with a slight majority identifying as women. The average age at first romantic relationship was notably early, occurring during mid-adolescence, while the mean number of romantic relationships and relatively short average duration point toward a pattern of frequent relational turnover. High prevalence of dating-app use and partner-related social media monitoring underscores the centrality of digital environments in shaping romantic experiences for this cohort, providing a critical backdrop for understanding the mechanisms underlying relational instability.

Table 2 reports the performance metrics of the machine learning models used to classify participants into stable versus unstable relationship patterns. This table highlights comparative predictive accuracy across algorithms and establishes the robustness of the selected analytic approach.

Table 2

Predictive Performance of Machine Learning Models for Relationship Instability

Model	Accuracy	Precision	Recall	F1-score	AUC
Regularized logistic regression	0.74	0.72	0.69	0.70	0.77
Random forest	0.82	0.80	0.79	0.79	0.86
Gradient boosting machine	0.85	0.84	0.82	0.83	0.89
Support vector machine	0.80	0.78	0.77	0.77	0.84

Results in Table 2 indicate that non-linear ensemble models outperformed linear approaches in identifying unstable relationship trajectories. The gradient boosting machine demonstrated the highest overall performance across all evaluation indices, suggesting that relationship instability among Generation Z is best explained by complex interactions among psychological, behavioral, and digital-use variables rather than by isolated linear effects.

Table 3 summarizes the relative importance of predictors derived from explainability analyses of the best-performing model. These predictors reflect the variables most strongly associated with early initiation and premature dissolution of romantic relationships.

Table 3

Top Predictors of Unstable Romantic Relationships (Gradient Boosting Model)

Predictor	Relative Importance
Speed of emotional attachment	High
Fear of abandonment	High
Dating-app use intensity	High
Rejection sensitivity	Moderate–High
Social media partner monitoring	Moderate
Emotional regulation difficulties	Moderate
Avoidant attachment tendencies	Moderate
Perceived partner alternatives	Moderate–Low

As shown in Table 3, rapid emotional attachment emerged as the most influential predictor, indicating that relationships characterized by accelerated intimacy were significantly more likely to be unstable. Fear of abandonment and intensive engagement with dating applications further contributed to instability, highlighting the interplay between internal attachment-related vulnerabilities and external digital affordances in shaping relational outcomes.

Table 4 presents the clustering results that identified distinct relational profiles within the sample, based on psychological traits and relationship behaviors. These profiles provide a typological understanding of how instability manifests across subgroups.

Table 4

Identified Relationship Profiles Based on Clustering Analysis

Cluster label	Dominant characteristics	Proportion of sample
Accelerated–fragile	Rapid attachment, high anxiety, short duration	34.6%
Digitally entangled	High social media and app reliance, frequent breakups	27.1%
Avoidant–episodic	Emotional distancing, serial short relationships	21.4%
Relatively stable	Slower initiation, lower digital intrusion	16.9%

Table 4 demonstrates that over one-third of participants belonged to an accelerated–fragile profile, characterized by swift emotional bonding followed by rapid dissolution. In contrast, the relatively stable cluster constituted the smallest proportion of the sample, underscoring the predominance of instability-related patterns among Generation Z romantic relationships in this urban context.

Table 5 reports the association between key psychological variables and the composite relationship instability index, as estimated by the final predictive model.

Table 5

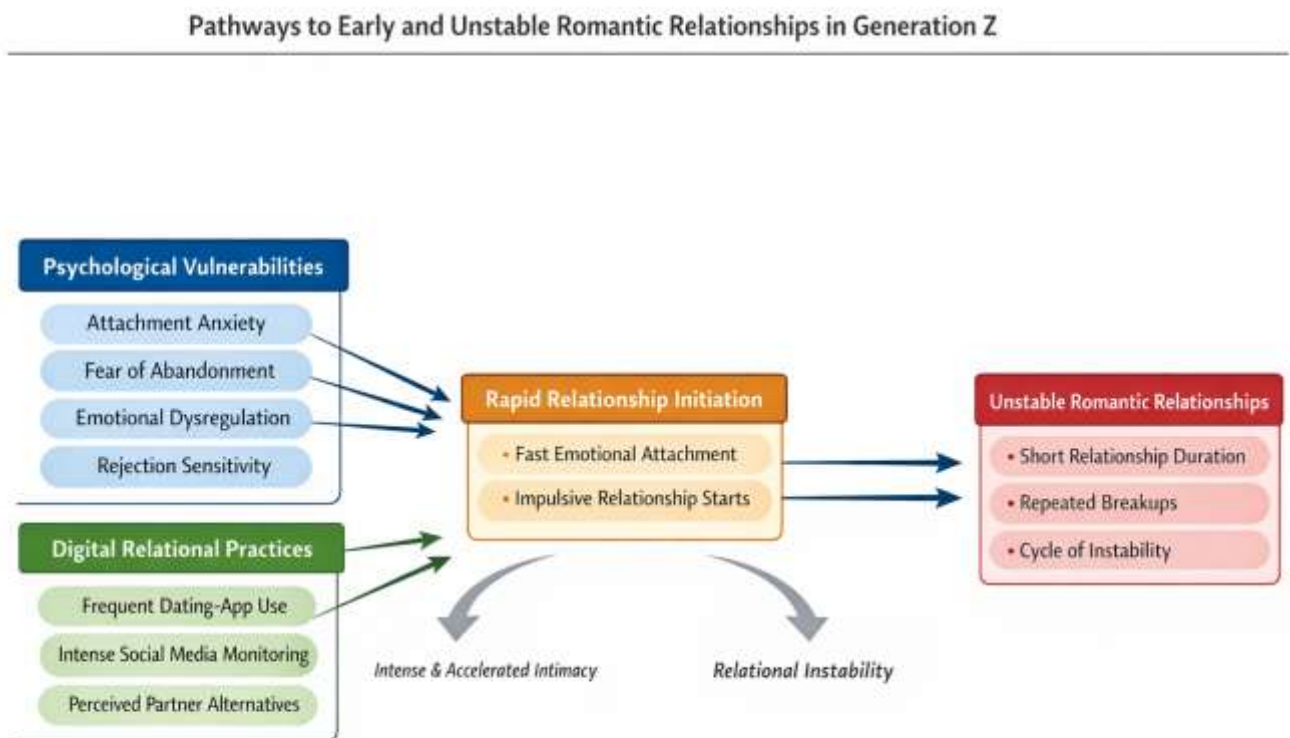*Direction and Strength of Associations With Relationship Instability*

Variable	Direction of association	Relative strength
Attachment anxiety	Positive	Strong
Emotional dysregulation	Positive	Moderate–Strong
Fear of intimacy	Positive	Moderate
Secure attachment indicators	Negative	Moderate
Offline relational support	Negative	Moderate–Strong

Findings in Table 5 indicate that attachment anxiety and emotional dysregulation were strongly and positively associated with instability, whereas indicators of secure attachment and offline social support exerted protective effects. These results reinforce the central role of emotional and attachment-related processes in shaping the durability of young adults' romantic relationships.

Figure 1

Conceptual visualization of pathways leading to early initiation and unstable romantic relationships among Generation Z

Overall, the findings collectively reveal that early-starting and short-lived romantic relationships among Generation Z are not random occurrences but are systematically linked to identifiable psychological vulnerabilities, digital relational practices, and accelerated intimacy patterns. The convergence of machine learning performance, predictor importance, and relational profiling provides a coherent empirical narrative explaining why many contemporary young adults' relationships begin quickly yet struggle to endure.

4. Discussion

The findings of the present study provide a coherent and multifaceted explanation for why romantic relationships among Generation Z tend to start early yet remain unstable, integrating psychological vulnerabilities, digital relational practices, and accelerated intimacy dynamics into a single explanatory framework. The strong predictive performance of non-linear machine learning models, particularly gradient boosting, underscores that relationship instability in this cohort cannot be reduced to isolated variables but instead emerges from complex interactions among emotional, behavioral, and contextual factors. This result aligns with recent scholarship emphasizing that contemporary romantic relationships are shaped by fluctuating perceptions, situational cues, and rapidly changing interpersonal signals rather than stable, linear trajectories (Zoppolat et al., 2025). The superiority of ensemble models over linear approaches suggests that Gen Z relational patterns are inherently dynamic and sensitive to threshold effects, such as sudden drops in perceived partner responsiveness or spikes in emotional insecurity.

One of the most salient findings was the central role of rapid emotional attachment in predicting unstable relationships. Participants whose relationships escalated quickly in terms of emotional disclosure and perceived intimacy were significantly more likely to experience short relationship durations and repeated breakups. This pattern is consistent with theoretical perspectives that frame romantic relationships as sources of personal significance and identity

validation, particularly in contexts where alternative sources of meaning are weakened (Contu et al., 2024). When emotional attachment develops faster than relational trust, shared norms, or conflict-management capacities, relationships may become emotionally intense yet structurally fragile. Such dynamics help explain why early enthusiasm often gives way to ambivalence, disappointment, and withdrawal, a process that has been linked to evaluative conflict within intimate relationships (Tillman, 2022).

Attachment-related vulnerabilities further amplified this instability. High levels of attachment anxiety, fear of abandonment, and rejection sensitivity emerged as strong predictors of unstable relationship trajectories. These findings align with evidence showing that fluctuations in perceived partner responsiveness can generate ambivalence and insecurity, particularly among individuals who rely heavily on relational affirmation for emotional regulation (Zoppolat et al., 2025). For Generation Z, whose social worlds are saturated with rapid feedback and constant comparison, minor relational ambiguities may be magnified into perceived threats, triggering cycles of over-engagement followed by abrupt disengagement. This pattern resonates with broader generational analyses suggesting that Gen Z exhibits heightened emotional awareness but uneven emotional regulation skills, especially in close interpersonal contexts (Budiningtyas & Hutabarat, 2025).

Digital relational practices constituted another critical pathway to instability. High-intensity dating-app use and frequent social media monitoring of partners were among the most influential predictors in the final model. These findings reinforce prior research demonstrating that exposure to curated relationship content and public displays of intimacy on social media platforms can distort expectations, increase relational surveillance, and heighten dissatisfaction (Bello et al., 2025). Dating applications, while expanding opportunities for connection, simultaneously normalize the perception of abundant alternatives, which may undermine commitment and persistence during relational difficulties. Symbolic interaction processes operating within digital environments further shape relational meaning by continuously signaling availability, desirability, and replaceability (Lukmanto, 2025), thereby weakening the motivational foundations of long-term relational investment.

The clustering analysis provided additional insight by identifying distinct relational profiles within the sample. The largest cluster, characterized as accelerated–fragile, combined rapid attachment with high emotional anxiety and short relationship durations. This profile closely mirrors narrative findings from qualitative studies of Gen Z romantic experiences, which describe idealized relationship standards followed by rapid disillusionment when expectations are unmet (Manalili & Malcampo, 2025). The digitally entangled cluster, defined by intensive platform use and frequent breakups, highlights how technological mediation can become a structural feature of relational instability rather than a neutral communication tool. These profiles echo generational research suggesting that Gen Z's relational styles prioritize immediacy, responsiveness, and emotional intensity across domains, including organizational and athletic relationships (Landman et al., 2024; Parker et al., 2024).

Cultural narratives and symbolic representations of romance appear to further reinforce these patterns. The emphasis on passion, emotional extremity, and instant connection in popular music and media may cultivate expectations that are difficult to sustain in everyday relational life (Bamford et al., 2024). Additionally, cultural analyses of youth sexuality suggest that contemporary media genres contribute to shifting norms around intimacy and commitment, favoring short-term emotional gratification over gradual relational development (Ramos, 2024). When such symbolic frameworks intersect with psychological vulnerability and digital affordances, they may accelerate relationship initiation while simultaneously eroding relational durability.

The findings must also be interpreted within broader social diversity contexts. Generation Z's expanding recognition of sexual and gender diversity introduces both opportunities for authentic connection and new forms of relational uncertainty (Hammack, 2025). Social representations of intimacy and partnership continue to evolve across cultures and generations, sometimes creating mismatches between personal expectations and perceived social norms (Lianguzova & Rikel, 2021; Rikel, 2020). In multicultural urban environments, these tensions may be intensified by experiences of discrimination or marginalization, which have been shown to increase relational uncertainty and instability among young adults (Ogan et al., 2024). Thus, relational instability should not be interpreted solely as an individual deficit but as an emergent property of intersecting psychological, cultural, and structural forces.

Importantly, the present findings complement and extend prior intervention-focused research. While relationship education and training programs have demonstrated effectiveness in enhancing self-concept and relational

awareness among emerging adults (Tobing et al., 2024), the current results suggest that such interventions may need to address deeper emotional and contextual patterns, including accelerated intimacy norms and digitally mediated comparison processes. Moreover, cross-generational studies indicate that the transformation of courtship practices and relational expectations is not uniform across cultures, underscoring the importance of contextualized analysis (Khatri et al., 2024; Umali, 2025). By leveraging machine learning, the present study offers a pattern-based understanding that bridges individual psychology and socio-cultural context, providing a more comprehensive account of why Gen Z relationships often begin quickly yet fail to endure.

5. Conclusion

Overall, the discussion of findings supports the view that relationship instability among Generation Z is not merely a consequence of immaturity or lack of commitment but reflects adaptive responses to a rapidly changing relational ecology. Accelerated emotional processes, digital relational infrastructures, and heightened demands for personal significance collectively reshape how intimacy is formed and dissolved. Recognizing these dynamics is essential for developing theoretical models and practical interventions that resonate with the lived realities of contemporary young adults.

6. Limitations and Suggestions

Several limitations should be acknowledged when interpreting the findings of this study. The cross-sectional design precludes causal inference and limits the ability to examine how relationship instability unfolds over time. Reliance on self-report measures may introduce recall bias or social desirability effects, particularly in reporting sensitive relational experiences. The sample, while diverse, was drawn from a single metropolitan context, which may limit generalizability to non-urban or culturally distinct populations. Additionally, although machine learning models offer powerful pattern-detection capabilities, their outputs depend on the quality and scope of the input variables, and unmeasured factors such as family dynamics or economic stressors may also contribute to relational instability.

Future studies should employ longitudinal designs to capture temporal dynamics in relationship initiation, maintenance, and dissolution among Generation Z.

Integrating passive digital data, such as communication patterns or platform usage logs, could complement self-report measures and enhance predictive accuracy. Comparative cross-cultural research would help clarify how cultural norms moderate the relationship between digital practices and relational stability. Further exploration of protective factors, including emotional regulation skills and offline social support, may also inform more balanced models that account for both vulnerability and resilience in young adults' romantic lives.

From a practical perspective, relationship education initiatives targeting Generation Z should move beyond generic communication skills to address accelerated intimacy norms, emotional regulation, and digital boundary-setting. Mental health professionals and educators may benefit from incorporating discussions of social media influence, dating-app dynamics, and unrealistic romantic expectations into counseling and prevention programs. Finally, policymakers and youth organizations should consider creating spaces that foster gradual, meaningful connection and relational reflection, counterbalancing the speed and pressure characteristic of digitally mediated romantic environments.

Authors' Contributions

D.P., J.B., N.S., L.S., M.R., K.P., and N.H.G. jointly conceptualized the study and developed the research design. D.P. and J.B. coordinated data collection and participant recruitment. M.R. and K.P. led the machine learning modeling, statistical analysis, and interpretation of computational findings. N.S. and L.S. contributed to theoretical development and psychological interpretation of the results. N.H.G. supervised the methodological procedures and critically revised the manuscript. All authors contributed to drafting the manuscript, approved the final version, and accept full responsibility for the integrity of the work.

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