

Research Paper

## Facebook Use, Personality Traits, and Loneliness among Postgraduate Students: A Comparative Study

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### ABSTRACT

The present study examines differences between Facebook users and non-users in personality traits based on the Five-Factor Model, levels of loneliness, and explores the contribution of demographic variables to these psychological outcomes. A quota sample of 100 postgraduate students (50 Facebook users and 50 non-users) from Karnatak University, Dharwad, was assessed using the NEO Five-Factor Inventory and the UCLA Loneliness Scale (Version 3). Independent sample *t*-tests and stepwise multiple regression analyses were employed. Results indicated no significant differences between Facebook users and non-users across personality dimensions; however, Facebook users reported significantly higher loneliness. Several demographic variables (e.g., duration of Facebook use, birth order, number of siblings, gender, and early background) significantly predicted specific personality traits and loneliness. Findings are discussed in light of social compensation and personality-based explanations of social networking site use.

**Keywords:** Facebook Use, Big Five Personality Traits, Loneliness, Postgraduate Students, Social Networking Sites

Social networking sites (SNSs) such as Facebook have become deeply embedded in contemporary patterns of social interaction, transforming how individuals initiate, maintain, and negotiate relationships across temporal and geographical boundaries. SNSs allow users to construct online identities, share personal content, and engage in ongoing social exchange, effectively extending offline networks into digitally mediated environments (Boyd & Ellison, 2007). While these platforms facilitate connection and communication, they also introduce new dynamics of self-presentation, impression management, and social comparison that may shape psychological functioning (Valkenburg & Peter, 2011).

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Personality traits have emerged as important predictors of how individuals engage with SNSs. The Five-Factor Model (FFM)—comprising neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness—offers a comprehensive framework for understanding individual differences in online behavior (McCrae & Costa, 2008). Extraverted individuals, characterized by sociability and assertiveness, tend to use SNSs to expand and maintain social networks, whereas individuals high in neuroticism may use online environments for reassurance seeking or emotional expression (Correa et al., 2010; Ross et al., 2009). Conscientiousness, reflecting self-discipline and impulse control, has been associated with more deliberate and cautious online self-presentation (Ryan & Xenos, 2011). These patterns suggest that SNS engagement is not merely technological behavior but is intertwined with enduring personality characteristics.

Loneliness, defined as the subjective discrepancy between desired and actual social relationships, has also received substantial attention in SNS research (Perlman & Peplau, 1981). SNSs may serve as compensatory tools for socially isolated individuals, enabling connection that might otherwise be inaccessible (Valkenburg & Peter, 2007). At the same time, excessive or maladaptive SNS use has been linked to increased social comparison, reduced face-to-face interaction, and heightened feelings of isolation (Kross et al., 2013). These contrasting findings reflect ongoing debate between the social compensation hypothesis—which posits that online communication benefits socially vulnerable individuals—and the social stimulation hypothesis, which suggests that socially skilled individuals derive the greatest gains from online interaction (Kraut et al., 2002; Valkenburg & Peter, 2011).

Empirical investigations into Facebook use and psychological well-being have produced mixed results. Some studies report gains in social capital, including increased perceived social support and bridging ties (Ellison et al., 2007), whereas others highlight associations with anxiety, depressive symptoms, and loneliness when use becomes excessive or comparison-driven (Primack et al., 2017). These inconsistencies underscore the importance of considering individual differences, contextual factors, and patterns of engagement rather than treating SNS use as uniformly beneficial or harmful. The rapid expansion of Facebook use among young adults in higher education settings makes this population particularly relevant for investigation. University students are navigating identity development, peer affiliation, and academic pressures, all of which intersect with digital communication practices (Subrahmanyam & Šmahel, 2011). Cultural context further shapes how SNSs are used and interpreted, influencing norms around self-disclosure, social comparison, and relationship maintenance. Consequently, systematic research within specific cultural and educational contexts is essential to clarify how personality traits and loneliness relate to SNS engagement.

Existing literature demonstrates meaningful associations between Facebook use and personality characteristics. Research grounded in the Five-Factor Model consistently indicates that extraversion predicts greater SNS activity, including frequent posting, larger friend networks, and more active communication (Correa et al., 2010; Gosling et al., 2011). Extraverts appear to use SNSs as extensions of their offline sociability, reinforcing the social stimulation hypothesis. Neuroticism, in contrast, has been linked to reassurance-seeking behaviors, emotional disclosure, and heightened sensitivity to feedback, suggesting that SNSs may function as spaces for affect regulation (Ross et al., 2009). Conscientious individuals tend to demonstrate restrained online behavior, engaging in thoughtful self-

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presentation and privacy management (Ryan & Xenos, 2011). Agreeableness has been associated with cooperative and supportive online interactions, whereas openness to experience correlates with exploratory use of digital tools and creative expression (Amichai-Hamburger & Vinitzky, 2010). Collectively, these findings reinforce the view that SNS behavior reflects broader personality patterns rather than constituting an isolated domain of functioning.

Loneliness occupies a central position in SNS research due to its complex bidirectional relationship with online communication. Some studies suggest that lonely individuals may turn to SNSs to compensate for limited offline connections, potentially enhancing perceived social support (Valkenburg & Peter, 2007). Conversely, longitudinal research indicates that passive consumption of social media content can intensify social comparison and feelings of exclusion, thereby increasing loneliness (Kross et al., 2013). The variability in findings highlights the importance of distinguishing between active, socially engaging use and passive browsing patterns (Verduyn et al., 2017). Demographic factors further complicate these relationships. Gender differences have been observed in patterns of SNS use, emotional expression, and susceptibility to social comparison (Muscanell & Guadagno, 2012). Family background, birth order, and living arrangements may shape personality development and social experiences, influencing how individuals perceive and utilize online social spaces. Cross-cultural studies reveal that norms surrounding self-disclosure, collectivism, and interpersonal boundaries affect both SNS engagement and experiences of loneliness (Jackson & Wang, 2013). These contextual variations underscore the need for culturally grounded investigations that consider demographic influences alongside psychological variables.

The literature suggests that Facebook use is embedded within a broader psychosocial framework involving personality, loneliness, and demographic context. While evidence supports meaningful associations, inconsistencies remain, particularly regarding causal direction and cultural generalizability. Continued research is therefore necessary to clarify these dynamics and to inform balanced perspectives on SNS use among young adults. The present study addresses this need by examining whether Facebook users and non-users differ in personality traits—neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness—and levels of loneliness. Additionally, it explores how demographic variables may interact with these psychological characteristics. By integrating personality theory with psychosocial outcomes, the study seeks to contribute to a nuanced understanding of digital social behavior among young adults.

### **METHODOLOGY**

#### *Objectives*

1. To examine differences between Facebook users and non-users in personality traits and loneliness.
2. To assess the contribution of demographic variables to personality traits and loneliness among Facebook users.
3. To assess the contribution of demographic variables to personality traits and loneliness among Facebook non-users.

#### *Sample*

The present study employed a quota sampling technique to select a total sample of 100 postgraduate (PG) students, comprising two equal groups: 50 Facebook users and 50 non-

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users. This sampling strategy ensured balanced representation for meaningful comparison between the two groups. All participants were drawn from the Karnatak University campus, Dharwad, thereby maintaining consistency in educational environment and institutional context. The Facebook user group consisted exclusively of students who actively used Facebook, ensuring clarity in classification and minimizing overlap with occasional or inactive users. To maintain homogeneity in academic engagement and lifestyle factors, only regular PG students enrolled in full-time programs were included in the study, while students pursuing distance education or vocational courses were excluded. These inclusion criteria were established to control for variations in academic exposure, peer interaction, and campus involvement, thereby enhancing the internal consistency and comparability of the sample.

### *Measures*

- 1. Personal Data Sheet:** A structured Personal Data Sheet was developed to collect demographic and background information relevant to the study. This form gathered details including gender, early background, parental education and occupation, family income, number of siblings, and birth order.
- 2. NEO Five-Factor Inventory (NEO-FFI):** The NEO Five-Factor Inventory (NEO-FFI) is a standardized self-report personality measure developed to operationalize the Five-Factor Model of personality. It consists of 60 items that assess five broad personality domains—Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness—through Likert-type response formats. Each domain is represented by 12 items, enabling efficient yet comprehensive assessment of enduring personality traits. The instrument demonstrates strong internal consistency, with reported Cronbach's alpha coefficients typically ranging from .68 to .86 across domains, and satisfactory test-retest reliability indicating temporal stability of personality constructs.
- 3. UCLA Loneliness Scale (Version 3):** The UCLA Loneliness Scale (Version 3) is a 20-item self-report instrument designed to measure subjective feelings of loneliness and perceived social isolation. Respondents rate items on a four-point Likert scale reflecting the frequency of loneliness-related experiences. The scale captures cognitive and affective aspects of social dissatisfaction rather than objective social network size. Psychometric evaluations report high internal consistency, with Cronbach's alpha values typically exceeding .90, and strong test-retest reliability over extended intervals.

### *Statistical Analysis*

1. Independent samples *t*-tests were used to examine whether significant differences existed between Facebook users and non-users on the study variables.
2. Stepwise multiple regression analyses were conducted to identify demographic variables that significantly predicted personality traits and loneliness.

**RESULTS**

**Descriptive Statistics**

*Table 1: Mean and Standard Deviation for Personality dimensions and Loneliness scores among Facebook users and non-users.*

Sl. No.	Variables	Groups	Mean	SD
1	Neuroticism	Facebook Non-Users	48.88	10.69
		Facebook Users	51.12	9.24
2	Extraversion	Facebook Non-Users	51.23	10.35
		Facebook Users	48.77	9.61
3	Openness	Facebook Non-Users	50.16	11.94
		Facebook Users	49.84	7.67
4	Agreeableness	Facebook Non-Users	49.38	11.95
		Facebook Users	50.62	7.65
5	Conscientiousness	Facebook Non-Users	49.32	9.86
		Facebook Users	50.68	10.18
6	Loneliness	Facebook Non-Users	47.34	9.99
		Facebook Users	52.66	9.37

The descriptive statistics indicate modest differences between Facebook users and non-users across personality traits and loneliness. Facebook users obtained slightly higher mean scores on neuroticism than non-users, suggesting comparatively greater emotional sensitivity and variability within this group. Conversely, non-users showed marginally higher extraversion scores, indicating a somewhat stronger tendency toward sociability and outward engagement in offline contexts. The differences observed in openness to experience were minimal, implying that both groups demonstrate similar levels of curiosity and receptivity to new experiences. Overall, the mean differences across personality dimensions are small, suggesting that Facebook users and non-users share broadly similar personality profiles. The elevated loneliness scores among users represent the most distinct descriptive pattern, highlighting a potential psychosocial difference between the groups.

*Table 2: Mean Differences, SEMs and t-values for the score of Personality (Dimension-Wise)*

Sl. No.	Variables	Groups	MDs	SEMs	t-values
1	Neuroticism	Facebook Non-Users	-2.24	1.99	-1.12
		Facebook Users			
2	Extraversion	Facebook Non-Users	2.45	1.99	1.23
		Facebook Users			
3	Openness	Facebook Non-Users	0.33	1.99	0.16
		Facebook Users			
4	Agreeableness	Facebook Non-Users	-1.25	2.01	-0.62
		Facebook Users			
5	Conscientiousness	Facebook Non-Users	-1.36	2.01	-0.67
		Facebook Users			

Table 2 presents the mean differences, standard errors of the mean (SEMs), and independent samples *t*-values comparing Facebook users and non-users across personality dimensions. The results indicate that none of the observed group differences reached a magnitude suggestive of meaningful statistical separation. For neuroticism, the negative mean difference indicates that Facebook users scored slightly higher than non-users; however, the obtained *t*-value (-1.12) suggests that this difference is small relative to sampling

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variability. A similar pattern is observed for agreeableness and conscientiousness, where Facebook users showed marginally higher scores, yet the corresponding  $t$ -values ( $-0.62$  and  $-0.67$ , respectively) indicate minimal group separation. In contrast, non-users demonstrated slightly higher scores on extraversion and openness. Nevertheless, the  $t$ -values for extraversion ( $1.23$ ) and openness ( $0.16$ ) remain low, reflecting negligible differences between groups. The small SEM values across variables indicate consistent variability within groups, reinforcing that the observed mean differences are minor. Overall, the pattern of results suggests that Facebook users and non-users do not differ substantially in personality dimensions. The low  $t$ -values across all traits indicate that personality profiles are broadly comparable between groups, with only trivial variations observed in descriptive terms.

**Table 3: Mean Difference, SEM and  $t$ -value for the scores of Loneliness of Facebook Users and Non-Users**

Variable	Groups	N	MD	SEM	t-value
LS	NFU	50	-5.31	1.94	-2.74**
	FU	50			

\*\*  $p < .01$ ; Highly Significant

Table 3 presents the mean difference, standard error of the mean (SEM), and independent samples  $t$ -test results comparing loneliness scores between Facebook users and non-users. The negative mean difference ( $-5.31$ ) indicates that Facebook users reported higher loneliness scores than non-users. The obtained  $t$ -value of  $-2.74$  is statistically significant at the 0.01 level, demonstrating that the observed difference is unlikely to have occurred by chance. The magnitude of the  $t$ -value relative to the SEM suggests a meaningful separation between the two groups in perceived loneliness. This finding indicates that Facebook users in the sample experience significantly greater subjective loneliness compared to their non-user counterparts. The consistency of the SEM further supports the reliability of this group difference. Overall, the results reveal a statistically significant disparity in loneliness scores, with Facebook users reporting higher perceived social isolation than non-users.

**Table 4: Results of Step-Wise Multiple Regression Analysis of the Factors Contributing to the Neuroticism Scores of Facebook Users**

Sl. No.	Demographic Variables	Beta Coefficients	Standard Errors	Contributed $R^2$	Overall Adjusted $R^2$	Overall F-ratio	t-values
1	Use of Facebook (3+ Hours)	-13.23	4.23	0.165	0.23	8.42	-3.13**
2	Birth Order (First Born)	6.17	2.45	0.099	0.23	8.42	2.51*

\*\* $p < .01$ ; Highly Significant

\* $p < .05$ ; Significant

Table 4 presents the results of the stepwise multiple regression analysis examining demographic predictors of neuroticism scores among Facebook users. The overall regression model was statistically significant, as indicated by the  $F$ -ratio ( $8.42$ ,  $p < .01$ ), demonstrating that the selected predictors collectively explain a meaningful proportion of variance in neuroticism. The adjusted  $R^2$  value of .23 indicates that approximately 23% of the variability in neuroticism scores is accounted for by the demographic variables included in the model.

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Two predictors emerged as statistically significant contributors. Use of Facebook for three or more hours was negatively associated with neuroticism ( $\beta = -13.23, t = -3.13, p < .01$ ), suggesting that higher-duration Facebook use is linked with lower neuroticism scores within this sample. This variable contributed substantially to the explained variance ( $R^2$  contribution = .165), indicating a notable predictive role. Birth order, specifically being first born, showed a positive association with neuroticism ( $\beta = 6.17, t = 2.51, p < .05$ ), indicating relatively higher neuroticism scores among first-born participants compared to others. Overall, the regression results indicate that duration of Facebook use and birth order significantly predict neuroticism scores among Facebook users, with the model explaining a moderate proportion of variance.

**Table 5: Results of Step-Wise Multiple Regression Analysis of the Factors Contributing to the Openness Scores of Facebook Users**

Sl. No.	Demographic Variable	Beta Coefficient	Standard Error	Contributed $R^2$	Overall Adjusted $R^2$	Overall F-ratio	t-value
1	Birth Order (Middle Born)	8.19	3.46	0.105	0.86	5.60	2.36*

\* $p < .05$ ; Significant

Table 5 summarizes the results of the stepwise multiple regression analysis conducted to identify demographic predictors of openness scores among Facebook users. The overall regression model was statistically significant, as indicated by the  $F$ -ratio (5.60,  $p < .05$ ), suggesting that the included predictor meaningfully explains variance in openness. The adjusted  $R^2$  value indicates that a substantial proportion of variability in openness scores is accounted for by the model. Birth order, specifically being middle born, emerged as a significant predictor of openness ( $\beta = 8.19, t = 2.36, p < .05$ ). The positive beta coefficient indicates that middle-born participants scored higher on openness relative to other birth-order categories. This predictor contributed an  $R^2$  value of .105, reflecting a measurable portion of explained variance. Overall, the findings indicate that birth order plays a statistically significant role in predicting openness among Facebook users, with middle-born individuals demonstrating comparatively higher openness scores within the sample.

**Table 6: Results of Step-Wise Multiple Regression Analysis of the Factors Contributing to the Agreeableness Scores of Facebook Users**

Sl. No.	Demographic Variable	Beta Coefficient	Standard Error	Contributed $R^2$	Overall Adjusted $R^2$	Overall F-ratio	t-value
1	Number of Siblings (None)	6.07	2.85	0.086	0.67	4.53	2.12*

\* $p < 0.05$ ; Significant

Table 6 presents the results of the stepwise multiple regression analysis examining demographic predictors of agreeableness scores among Facebook users. The overall regression model was statistically significant, as indicated by the  $F$ -ratio (4.53,  $p < .05$ ), demonstrating that the selected predictor contributes meaningfully to explaining variation in agreeableness. The adjusted  $R^2$  value suggests that the model accounts for a measurable portion of variance in agreeableness scores within the sample. The analysis identified number of siblings—specifically having no siblings—as a significant predictor of agreeableness ( $\beta = 6.07, t = 2.12, p < .05$ ). The positive beta coefficient indicates that

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participants without siblings obtained higher agreeableness scores relative to those with siblings. This variable contributed an  $R^2$  value of .086, reflecting its explanatory role in the regression model. Overall, the findings indicate that sibling status is a statistically significant demographic predictor of agreeableness among Facebook users, with only-child participants showing comparatively higher agreeableness scores.

**Table 7: Results of Step-Wise Multiple Regression Analysis of the Factors Contributing to the Loneliness Scores of Facebook Users**

Sl. No.	Demographic Variable	Beta Coefficient	Standard Error	Contributed $R^2$	Overall Adjusted $R^2$	Overall F-ratio	t-value
1	Facebook is a part of my everyday activity (Neutral)	-20.13	9.12	0.0012	0.73	4.87	-2.20*

\* $p < 0.05$ ; Significant

Table 7 presents the results of the stepwise multiple regression analysis examining demographic predictors of loneliness scores among Facebook users. The overall regression model was statistically significant, as indicated by the  $F$ -ratio (4.87,  $p < .05$ ), suggesting that the included predictor contributes meaningfully to explaining variation in loneliness scores. The adjusted  $R^2$  value indicates that the model accounts for a measurable proportion of variance in perceived loneliness within the sample.

The analysis identified the response category indicating that Facebook is considered a neutral part of everyday activity as a significant predictor of loneliness ( $\beta = -20.13$ ,  $t = -2.20$ ,  $p < .05$ ). The negative beta coefficient suggests that participants who reported a neutral perception of Facebook as part of their daily routine obtained lower loneliness scores relative to other response categories. Although the contributed  $R^2$  value is small, the predictor demonstrates a statistically significant association with loneliness. Overall, the regression findings indicate that perceptions of Facebook's role in daily activity significantly predict loneliness scores among Facebook users, with a neutral perception associated with comparatively lower reported loneliness.

**No demographic variables are found to be contributing significantly to Extraversion and Conscientiousness dimensions of Personality scores of Facebook Users.**

**Table 8: Results of Step-Wise Multiple Regression Analysis of the Factors Contributing to the Neuroticism Scores of Non-Users**

Sl. No.	Demographic Variable	Beta Coefficient	Standard Error	Contributed $R^2$	Overall Adjusted $R^2$	Overall F-ratio	t-value
1	Early Background (Rural)	7.38	3.23	0.098	0.79	5.21	2.28*

\* $p < .05$ ; Significant

Table 8 presents the results of the stepwise multiple regression analysis examining demographic predictors of neuroticism scores among Facebook non-users. The overall regression model was statistically significant, as indicated by the  $F$ -ratio (5.21,  $p < .05$ ),

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suggesting that the included predictor contributes meaningfully to explaining variation in neuroticism scores. The adjusted  $R^2$  value indicates that the model accounts for a measurable proportion of variance in neuroticism within the non-user group.

Early background, specifically rural upbringing, emerged as a significant predictor of neuroticism ( $\beta = 7.38, t = 2.28, p < .05$ ). The positive beta coefficient indicates that participants from rural backgrounds reported higher neuroticism scores compared to those from other backgrounds. The contributed  $R^2$  value of .098 reflects the explanatory role of this demographic factor in the regression model. Overall, the findings indicate that early rural background is a statistically significant demographic predictor of neuroticism among Facebook non-users, with rural participants demonstrating comparatively higher neuroticism scores within the sample.

**Table 9: Results of Step-Wise Multiple Regression Analysis of the Factors Contributing to the Extraversion Scores of Non-Users**

Sl. No.	Demographic Variables	Beta Coefficients	Standard Error	Contributed $R^2$	Overall Adjusted $R^2$	Overall F-ratio	t-values
1	Stay (Hostel)	-8.86	2.64	0.185	0.218	7.82	-3.35**
2	Father's Education (SSLC-PUC)	-7.53	3.73	0.065	0.218	7.82	-2.01*

\* $p < .05$ ; Significant

\*\* $p < .01$ ; Highly Significant

Table 9 presents the results of the stepwise multiple regression analysis examining demographic predictors of extraversion scores among Facebook non-users. The overall regression model was statistically significant, as indicated by the  $F$ -ratio (7.82,  $p < .01$ ), demonstrating that the included demographic variables collectively explain a meaningful proportion of variance in extraversion. The adjusted  $R^2$  value of .218 indicates that approximately 21.8% of the variability in extraversion scores is accounted for by the predictors in the model.

Two demographic variables emerged as significant contributors. Staying in a hostel was negatively associated with extraversion ( $\beta = -8.86, t = -3.35, p < .01$ ), suggesting that participants residing in hostels reported lower extraversion scores compared to those in other living arrangements. This variable contributed an  $R^2$  value of .185, indicating a substantial role in explaining variance. Father's education level (SSLC-PUC) was also a significant negative predictor ( $\beta = -7.53, t = -2.01, p < .05$ ), indicating comparatively lower extraversion scores among participants whose fathers had this level of education. Overall, the regression findings indicate that living arrangement and paternal education are statistically significant demographic predictors of extraversion among Facebook non-users, with both variables associated with relatively lower extraversion scores within the sample.

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**Table 10: Results of Step-Wise Multiple Regression Analysis of the Factors Contributing to the Loneliness Scores of Non-Users**

Sl. No.	Demographic Variables	Beta Coefficients	Standard Error	Contributed R <sup>2</sup>	Overall Adjusted R <sup>2</sup>	Overall F-ratio	t-values
1	Number of Siblings (3 and above)	-9.74	3.39	0.115	0.165	5.83	-2.87**
2	Gender (Female)	6.02	2.71	0.084	0.165	5.83	2.22*

\* $p < .05$ ; Significant

\*\* $p < .01$ ; Highly Significant

Table 10 presents the results of the stepwise multiple regression analysis examining demographic predictors of loneliness scores among Facebook non-users. The overall regression model was statistically significant, as indicated by the  $F$ -ratio (5.83,  $p < .01$ ), demonstrating that the included demographic variables collectively explain a meaningful portion of variance in loneliness. The adjusted  $R^2$  value of .165 indicates that approximately 16.5% of the variability in loneliness scores is accounted for by the predictors in the model.

Two demographic variables emerged as significant contributors. Having three or more siblings was negatively associated with loneliness ( $\beta = -9.74$ ,  $t = -2.87$ ,  $p < .01$ ), suggesting that participants from larger sibling groups reported lower loneliness scores relative to those with fewer siblings. This variable contributed an  $R^2$  value of .115, indicating a notable role in explaining variance. Gender also emerged as a significant predictor, with female participants showing higher loneliness scores ( $\beta = 6.02$ ,  $t = 2.22$ ,  $p < .05$ ) compared to male participants. Overall, the regression findings indicate that family size and gender are statistically significant demographic predictors of loneliness among Facebook non-users, with larger sibling networks associated with lower loneliness and female gender associated with comparatively higher loneliness scores within the sample.

**No demographic variables are found to be contributing significantly to Agreeableness, Openness and Conscientiousness dimensions of Personality of Non users.**

### DISCUSSION

The present findings provide a multidimensional view of how Facebook use, personality traits, loneliness, and demographic characteristics intersect among postgraduate students. Across descriptive comparisons, Facebook users and non-users demonstrated broadly similar personality profiles, with only modest mean differences in neuroticism, extraversion, openness, agreeableness, and conscientiousness. This pattern aligns with the broader literature suggesting that social media engagement is not restricted to a narrowly defined personality type but instead reflects a wide distribution of individual differences (Correa et al., 2010; Gosling et al., 2011). Personality traits appear to shape *how* individuals engage with social platforms rather than determining categorical participation itself.

A notable pattern emerged in loneliness, where Facebook users reported higher perceived loneliness compared to non-users. Loneliness is conceptualized as a subjective discrepancy between desired and actual social relationships rather than an objective absence of social contact (Perlman & Peplau, 1981). The observed elevation in loneliness among users is consistent with social compensation perspectives, which propose that individuals

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experiencing social dissatisfaction may turn to online platforms to regulate connection needs (Valkenburg & Peter, 2007). At the same time, digital interaction may not fully replace the emotional depth of face-to-face relationships, potentially sustaining feelings of social disconnection (Kross et al., 2013; Verduyn et al., 2017). Importantly, the data do not establish causality; loneliness may motivate online engagement just as patterns of engagement may influence perceived social well-being. The regression analyses add nuance by highlighting demographic factors associated with personality traits and loneliness within user and non-user groups. Among Facebook users, duration of use, birth order, sibling structure, and perceptions of Facebook's role in daily life emerged as significant predictors of specific psychological dimensions. These findings suggest that digital behavior operates within a broader developmental and familial context. Birth-order effects, for example, have long been associated with differences in social orientation and emotional regulation, potentially influencing openness and neuroticism (Sulloway, 1996). Similarly, sibling configuration may contribute to interpersonal skill development, which is reflected in agreeableness and perceived social connectedness.

For non-users, early background, living arrangements, parental education, gender, and family size were linked to variations in neuroticism, extraversion, and loneliness. These patterns underscore the role of sociocultural and environmental factors in shaping emotional and social experiences (Bronfenbrenner, 1979). For instance, communal or resource-rich family environments may buffer loneliness, while transitional living contexts such as hostel residence may influence social expression. Gender differences in loneliness observed here are consistent with research suggesting that emotional expression and social expectations shape how loneliness is experienced and reported (Barreto et al., 2021). Taken together, the findings reinforce a biopsychosocial perspective in which personality traits, subjective social experiences, and demographic context jointly influence digital engagement. Social media platforms function as extensions of existing psychological tendencies and social environments rather than isolated determinants of well-being. The elevated loneliness among Facebook users highlights the importance of distinguishing between quantity and quality of social interaction. Active, meaningful engagement may foster connection, whereas passive or comparison-driven use may exacerbate dissatisfaction (Verduyn et al., 2017).

From an applied standpoint, these results suggest that interventions aimed at promoting digital well-being should integrate personality-informed strategies and contextual awareness. Educational settings may benefit from fostering balanced online–offline social practices, emotional regulation skills, and awareness of healthy communication habits. Future research employing longitudinal designs and behavioral measures of social media use would help clarify causal pathways and identify protective factors that support psychological adjustment in digitally mediated environments. Overall, the study contributes to an emerging body of work demonstrating that social media behavior is embedded within complex personality and demographic frameworks. Rather than portraying Facebook use as inherently beneficial or harmful, the findings emphasize variability in individual experience, underscoring the need for nuanced, context-sensitive interpretations.

### ***Limitations***

Several limitations of the present study should be acknowledged when interpreting the findings. First, the sample size was relatively modest and drawn from a single university context, which may limit the generalizability of the results to broader student populations or different sociocultural settings. The homogeneity of the sample, while useful for internal

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consistency, restricts the extent to which the findings can be extended to diverse demographic or educational groups. Second, the study employed a cross-sectional research design, capturing relationships among Facebook use, personality traits, and loneliness at a single point in time. Such a design precludes causal inference and does not allow examination of temporal changes or directional influences. The observed associations therefore reflect concurrent relationships rather than developmental or longitudinal processes. Additionally, reliance on self-report measures introduces the possibility of response biases, including social desirability and subjective interpretation of items. Although standardized instruments with established psychometric properties were used, self-reported data may not fully capture behavioral patterns or contextual nuances of social media engagement. Finally, the study focused primarily on categorical distinctions between Facebook users and non-users without detailed measurement of usage patterns, intensity, or qualitative aspects of online interaction, which may influence psychological outcomes.

### *Future Directions*

Future research should aim to address these limitations by employing larger and more diverse samples that include participants from varied educational, cultural, and socioeconomic backgrounds. Broader sampling would enhance the external validity of findings and allow examination of subgroup differences that may shape the relationship between social networking behavior and psychological functioning. Longitudinal and mixed-method research designs are particularly important for clarifying causal pathways and developmental trajectories. Tracking individuals over time would help determine whether loneliness predicts social media engagement, results from it, or interacts with personality factors in a reciprocal manner. Incorporating behavioral measures of SNS use—such as frequency, type of interaction, and qualitative engagement—would provide a more nuanced understanding of digital social behavior beyond binary user classifications. Future studies may also benefit from integrating experimental or intervention-based approaches to explore how changes in online behavior influence emotional well-being and personality expression. Expanding the scope to include additional psychosocial variables, such as social support, coping strategies, and emotional regulation, could further illuminate mechanisms linking digital environments and mental health. Such efforts would contribute to a more comprehensive framework for understanding the psychological implications of social networking in contemporary academic populations.

## **CONCLUSION**

This study examined differences in personality traits and loneliness between Facebook users and non-users among postgraduate students, as well as the contribution of selected demographic factors. The findings indicate that Facebook use is not associated with substantial differences in core personality dimensions, suggesting that engagement with social networking platforms reflects a wide range of personality profiles. However, Facebook users reported higher levels of perceived loneliness, highlighting a meaningful psychosocial distinction between the groups. Regression analyses further demonstrated that demographic characteristics selectively predict personality traits and loneliness, underscoring the role of contextual factors in shaping psychological outcomes. Collectively, the results suggest that social media engagement is embedded within broader individual and social frameworks, warranting nuanced interpretation in academic and applied contexts.

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