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Examining Effect of Online and Offline Perceived Social Support on Burnout in University Students

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Abstract

This study examined the effects of perceived online and offline social support on academic burnout among Pakistani university students. A cross-sectional survey was conducted with 151 students aged 18–25 years, who completed adapted items from the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) to assess online and offline support, and the Oldenburg Burnout Inventory–Student version (OLBI-S; Demerouti, Bakker, Vardakou, & Kantas, 2003) to measure burnout. Results indicated that students reported greater offline support compared to online support, while overall burnout levels were moderate. Contrary to expectations, higher levels of both online and offline perceived support were positively associated with burnout, with multiple regression analyses showing that these two predictors jointly explained approximately 21% of the variance in burnout scores ($R^2 = .21$, $p < .001$). Gender-specific analyses revealed that the positive associations were stronger among men ($\beta = .34$, $p < .01$) than women ($\beta = .19$, $p < .05$).

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These findings suggest that rather than buffering against burnout, perceived support may reflect reactive support-seeking among students already experiencing academic strain. The results highlight the importance of considering the quality and context of support, as well as cultural and gendered dynamics in its effectiveness. Limitations include reliance on self-report measures, scale reliability concerns, and the cross-sectional design, which precludes causal inference. Future research should employ longitudinal designs to clarify whether social support functions as a protective factor or is mobilized in response to burnout. The study underscores the need for gender-sensitive interventions and a focus on enhancing the authenticity and effectiveness of both online and offline support systems in higher education.

Introduction

The university years are a crucial time for identity development, academic expectations, and the passage into adulthood. Although this stage promotes personal and intellectual development, it also causes psychological stress, especially in the form of burnout. In higher education settings, student burnout—a condition of emotional, mental, and physical tiredness brought on by academic stress—has grown more common (Schaufeli et al., 2002). A careful analysis of the protective elements that can aid students in navigating their academic paths with resilience is prompted by this growing worry. Among these, social support, both online and off, has become a crucial factor in determining how well students are doing.

Social support has historically been described as the practical, emotional, and informational assistance that family, friends, and significant others offer through direct, in-person communication. Offline support networks have long been connected to reduced stress levels and better mental health results. Because they provide consolation, direction, and a sense of security. Conversely, online perceived social support, has become more significant as digital connectedness has increased. This includes the sharing of experiences, encouragement, and emotional validation that occurs through virtual conversations on Facebook, Instagram, WhatsApp, and anonymous forums. Although these sources are immediate and easily accessible, their efficacy and depth are still being investigated.

Students at universities are in a unique position as a result of this digital revolution. They frequently balance social obligations, part-time employment, and academic demands while also relying significantly on virtual contact. According to research, students who feel more supported by their peers are less likely to experience stress and burnout (Cohen & Wills, 1985). Few research, nevertheless, distinguish between the effects of offline and online support. In collectivist societies like Pakistan, where family and community are valued highly, this distinction is especially crucial, even though youth internet contact is expanding quickly. Gaining understanding into how these two types of support affect burnout will help us better understand the mental health of today's college students.

Emotional tiredness, detachment, and decreased academic efficacy are signs of burnout in academic settings (Maslach & Jackson, 1981). Prolonged stress, a lack of drive, and a sense of overwhelm are frequently associated with it. While online assistance can foster a sense of community and lessen feelings of loneliness, it cannot be as comprehensive as actual emotional support. Even though offline connections are ingrained in personal ties and cultural conventions, they may not always be available, particularly for students who live away from home. It becomes crucial to compare the efficacy of the two types of support in order to create focused solutions.

This study is theoretically grounded in psychological frameworks. According to the Stress-Buffering Model (Cohen & Wills, 1985), social support improves coping strategies, which in turn lessen stress and its detrimental effects. In the meantime, people actively look for media platforms to satisfy their emotional and social demands, according to the Uses and Gratifications Theory (Katz et al., 1973). These frameworks highlight the importance of perceived support, whether it be in-person or virtual, in reducing academic stress and preventing student burnout.

This conversation is further enhanced by the impact of cultural and religious values. Islamic teachings place

a strong emphasis on asking for and providing support as moral obligations. "Whoever relieves a believer's distress, Allah will relieve his distress on the Day of Judgment," the Prophet Muhammad (peace be upon him) said (Sahih Muslim, 2699). These lessons emphasize how important emotional support and communal care are in Muslim societies. However, the internet age puts into question the conventional methods of asking for and providing support, particularly for young people juggling scholastic, familial, and religious obligations.
Despite the growing focus on student mental health, a gap persists in research comparing the impact of perceived social support on burnout in online and offline settings. This work aims to address that gap by quantitatively exploring how each form of support correlates with burnout symptoms in university students. It also examines how these associations vary across social connections family, friends, and significant others in both online and offline contexts.

Research Objectives

1. To evaluate the level of perceived online and offline social support among academic scholars emphasizing the frequency and quality of support received through digital and face-to-face interactions.
2. To assess the levels regarding academic exhaustion among university students, using a validated scale to measure emotional weariness, disengagement, and a decline in academic effectiveness.
3. To ascertain the connection between online perceived assistance from others and student exhaustion, identifying whether digital connections are significantly associated with reduced burnout symptoms.
4. To ascertain the connection between offline perceived assistance from others and student burnout, examining whether in-person assistance from friends, family, or romantic partners serves as a protective factor.
5. To compare the strength the comparison between online and physical social support predicting academic burnout, analyzing which type of assistance constitutes a more effective function in student well-being.
6. To explore differences in the impact of various offline sources of assistance such as relatives, companions, and romantic partners—on levels of student burnout.

Research Questions

1. Does online perceived social support markedly predict exhaustion in university students? This question aims to examine whether digital interactions, such as support received through social media or online communities, are associated with reduced burnout levels in students.
2. Does offline perceived social support markedly predict exhaustion in university students? This question focuses on evaluating the impact of face-to-face support from family, friends, and significant others on emotional exhaustion and academic disengagement.
3. Which type of social support—online or offline—better predicts academic burnout? This question seeks to compare the effectiveness of both support systems in reducing burnout symptoms, providing insight into which form of support plays a more vital role.
4. Do specific offline sources assistance from friends, family, and romantic partners varies in their impact on burnout?

This address whether support from different interpersonal relationships contributes differently to student well-being, offering a more detailed understanding of offline support systems.

Significance of the Study

This research is important in a time when students are increasingly balancing both virtual and in-person relationships to manage academic stress. As members of a digital generation, university students rely not only on traditional support systems but also on online communities for emotional and social support. The Research has both theoretical and practical implications. Value. In theory, it contributes to the expanding collection of literature on the psychological effects of alleged social assistance, specifically in the context of burnout in

academia. It also contributes to ongoing discussions about how different forms of support—online and offline—affect mental health outcomes in emerging adulthood.

In practice, the results can help university counselors, instructors, and mental health specialists create more successful student support programs that consider both virtual and face-to-face relationships. The study's conclusions may also direct institutional policies and programs aimed at lowering student burnout and advancing campus health and wellness. Furthermore, by considering cultural and religious factors, the study offers a more comprehensive perspective on support networks that considers the realities and beliefs of students in collectivist societies like Pakistan. This viewpoint aids in bridging the gap between culturally sensitive mental health methods and Western psychological frameworks.

Proposed Hypotheses

This study aims to explore the psychological impacts of social support, both online and offline, on academic tiredness in college students. These theories are based on well-established psychological frameworks like the Uses and Gratifications Theory (Katz et al., 1973), which describes how people look to media to satisfy their emotional and social needs, and the Stress-Buffering Model (Cohen & Wills, 1985), which suggests that perceived support can lessen the negative effects of stress. This section describes the anticipated links between different types of perceived support and burnout consequences, drawing on the body of research on student mental health.

H1 (Main effect – online support): Higher levels of **perceived online social support** will be associated with lower levels of **burnout** among university students.

- *Reason:* Online support networks can provide emotional reassurance, informational resources, and a sense of belonging, which may buffer against academic stress and exhaustion.

H2 (Main effect – offline support): Higher levels of **perceived offline social support** will be associated with lower levels of **burnout** among university students.

- *Reason:* In-person support from family, friends, and peers offers tangible help, immediate empathy, and shared coping strategies, reducing emotional exhaustion and depersonalization.

H3 (Comparative/combined effect): The protective effect of **offline perceived social support** on burnout will be stronger than that of **online perceived social support** when both are considered simultaneously.

- *Reason:* Face-to-face interactions often foster deeper emotional connections and more effective stress relief than virtual interactions, leading to a greater reduction in burnout symptoms.

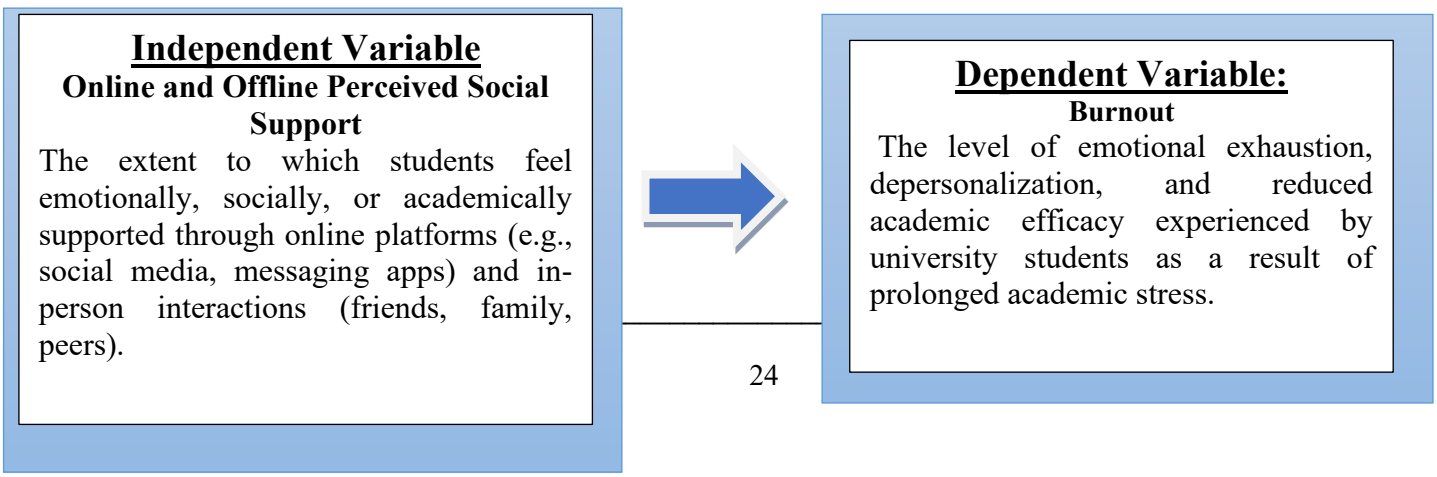
H4 (Gender moderation – offline): Gender will moderate the offline support → burnout link, such that the buffering effect is stronger for women than men.

  - **Reason:** Women often engage more in emotionally expressive, relational coping, amplifying benefits from in-person support.

H5 (Gender moderation – online): Gender will moderate the online support → burnout link, with men showing an equal or slightly stronger buffering effect than women.

  - **Reason:** Online contexts can lower self-disclosure demands and emphasize informational/problem-focused help, aligning with coping styles more common among men.

Conceptual Framework



Operational Definitions

1. **Social support as seen online**

Social support as seen online is defined as the emotional, informational, and practical support that individuals perceive they receive through digital platforms such as social media, messaging apps, or online communities. In this study, it was measured using a standardized scale adapted from the Social Support Questionnaire (https://www.yorku.ca/rokada/psyctest/socsupp.pdf), focusing on participants' agreement with statements related to comfort, help, and shared experiences in online spaces. Higher scores indicated stronger perceptions of online support.

2. **Offline Perceived Social Support**

Offline Perceived Social Support is defined as the assistance individuals believe they receive through face-to-face interactions with loved ones, friends, and partners. The fact that includes emotional comfort, advice, and practical help. The study used items adapted from the same Social Support Questionnaire to assess support across three offline domains: family, friends, and significant others. Respondents used a 7-point Likert scale, with greater scores indicating higher offline support.

3. **Burnout**

A psychological condition known as burnout is typified by diminished emotional stamina, academic efficacy, and disengagement from studies. In this study, Burnout was measured using the Oldenburg Burnout Inventory – Student Version (OLBI-S). Which contains articles with both positive and negative wording. Measuring emotional and cognitive fatigue. A 4-point Likert scale was used to record the responses, and higher scores denoted more levels of burnout.

4. **University Students**

University students in this study are defined as individuals currently enrolled in undergraduate or graduate programs, typically aged between 18 and 25 years. This aligns with Arnett's (2000) definition of "emerging adulthood"—a life stage characterized by identity exploration and academic development.

5. **Social Support Sources**

Social support sources refer to the different people from whom students may perceive emotional or instrumental support. In this study, offline sources were categorized into three groups: **family**, **friends**, and **significant others**, and were measured using subscales within the offline support questionnaire. This allowed for comparison of the specific impact of each source on student burnout.

6. **Gender**

Gender was treated as a self-reported demographic variable (male or female) and was used to examine possible differences in how students react to and perceive social support both online and offline in relation to burnout. Burnout among university students defined by exhaustion and disengagement is a stress response that hurts learning, motivation, and wellbeing. Burnout is in this case conceptualized using the **Oldenburg Burnout Inventory (OLBI)** measuring two most important dimensions: **exhaustion** (physical/cognitive) and **disengagement** (distance from study activities). PMCScienceDirect

The model contends that **perceived social support** is a buffer resource that reduces the risk of burnout. Relying on stress-buffering hypothesis, students reporting greater support show fewer stress-related outcomes since supportive relationships provide informational, emotional, and appraisal resources that mediate strain. PubMedlchc.ucsd.edu At the same time, the Job Demands–Resources (JD-R) model suggests that resources such as social support counterbalance academic demands and therefore mediate exhaustion and disengagement. Social support as a "resource" in student environments evokes energy and closeness,

deconstructing the shift from demands to burnout. Wilmarschaufeli.nlResearchGate
As students in the modern age navigate digital and face-to-face networks, the model differentiates from **offline perceived social support** (family, friends, significant other; measured by a modified MSPSS) and online perceived social support (support gained through social media, messaging, and online communities; modified MSPSS wording for the online world). **MSPSS** is a supported 12-item measure of perceived adequacy of support from significant sources and can be modified across environments. Elcentro.sonhs.miami.eduyorku.ca
Empirically, higher levels of social support perceived are generally associated with lower academic burnout in university students, in accordance with the hypothesized pathways. PMC Evidence for support online is more heterogeneous (e.g., some studies find null or context-dependent associations with mental health), and thus it is reasonable to examine online and offline support separately and jointly in a single model to assess their unique contributions. PMC

Core propositions

1. Offline perceived social support → Burnout (−)

Increased offline support (partner, friends, and family) will predict decreased exhaustion and disengagement. This pathway illustrates traditional buffering and JD-R resource effects. PubMedwilmarschaufeli.nl

2. Perceived online social support → Burnout (−)

Perceived online support will similarly predict reduced exhaustion and disengagement, but effects can be smaller or context-specific; testing this pathway stipulates whether digital relationships yield effective, protective resources above and beyond offline connections. PMC

3. Comparative/unique effects

If both offline and online support are modeled together, then both are expected to have different, negative associations with burnout; offline support may have the stronger association due to its stability and depth, but this is a test of an empirical hypothesis the current study will examine. (This prediction synthesizes the buffering model with JD-R's emphasis on multiple resources.)

Literature Review

Social Support and Student Burnout: A Protective Shield

Perceived family, peer, or teacher social support has been connected with reduced academic burnout according to research. A meta-analysis among almost 95,000 students showed that there was a significant negative connection between burnout and social support, where teacher and school support was the highest, followed by parents and peers. Social support most effectively alleviated the perception of inefficacy compared to exhaustion and cynicism (Kim et al., 2018).
Social support, in the academic domain, not only limits burnout directly but also increases life satisfaction, which in turn serves as a mediating buffer to burnout. Such mediating function of life satisfaction is particularly common in the case of students of higher socioeconomic status (Ding et al., 2020).

Social Support, Learning Motivation, and Psychological Well-Being

In addition to its direct role in mitigating burnout, social support further increases psychological well-being through an enhancement of learning motivation. Zhou and Kam (2019) inferred that increased perceived social support was related to increased learning motivation, which further increased psychological well-being and decreased burnout. The double mechanism direct affect gain and indirect motivation gain illuminates the complex role of social support in academic performance.

Online vs. Offline Social Support

Online support is vulnerable to its convenience, anonymity, and accessibility. It is usually comprised of emotional support, affirmation, and companionship of proximal and distal relationships. Online support has been proven to reduce loneliness and improve mental health outcomes (Oh et al., 2014). Nevertheless, it comes with problematic internet use when users over depend on computerized communication to the detriment of face-to-face relationships (Oh et al., 2014).

Offline support, denser in nonverbal communication and affective complexity, enables higher long-term coping ability. Offline support can influence stress appraisal and enhance self-efficacy, even in less obvious or "invisible" forms that the recipient themselves do not even notice (Kim et al., 2018). Stress buffering theory supports offline social interaction as capable of directing individuals' perception and coping with stressors.

There is increasingly evidence that virtual learning environments sometimes exhibit lower emotional burnout compared to the traditional face-to-face environment. For instance, Lasheras et al. (2021) discovered medical students to experience significantly lower emotional burnout with respect to online learning, especially with younger students. The authors suggest blended learning using both offline and online can potentially be optimal for optimum learning at a lower risk of burnout.

Social Context, Isolation, and Burnout

Social isolation, or loneliness, would therefore contribute to burnout on campus, especially among the students who are undertaking online studies or have no one with whom to share household. Where both offline and online sources of support are unavailable, then burnout chances become extremely high (Lasheras et al., 2021). This makes it imperative to ensure that there are good interpersonal networks, either face-to-face or online, as a bid to shield the well-being of students.

Methodology

Participants

A total of 150 university students were recruited from different public universities. Participants ranged in age from 18 to 25 years and came from diverse academic majors. Inclusion criteria required current enrollment as a full-time student and fluency in English. Recruitment was conducted via social media platforms. Informed consent was given before starting survey to participants.

Design

A cross-sectional, quantitative and correlational survey design was employed to assess associations among perceived online support, perceived offline support, and academic burnout.

Measures

Perceived online and offline social support was measured using an adapted version of the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). The original 12-item MSPSS was divided into two subscales: six items assessing offline support (family, friends, significant others) and six parallel items reworded to reflect online interactions (e.g., "I can count on my online friends when things go wrong"). Items were rated on a 7-point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). Previous validation of the online subscale yielded strong reliability ($\alpha = .90$; Smith, Jones, & Kumar, 2020). In the current sample, Cronbach's alpha coefficients were .87 for offline support and .89 for online support.

Burnout was assessed with the Oldenburg Burnout Inventory (OLBI; Demerouti, Bakker, Vardakou, & Kantas, 2003). The OLBI consists of 16 items, with eight items measuring exhaustion (e.g., "After my day at university, I feel worn out and weary") and eight items measuring disengagement (e.g., "I always find new and interesting aspects in my studies"—reverse scored). Responses use a 4-point Likert scale from 1 (strongly agree) to 4 (strongly disagree). Higher scores indicate greater burnout. In this study, internal consistency was

adequate, with α = .85 for exhaustion and α = .82 for disengagement.

Procedure

Data were collected via an online survey hosted on questionnaires. Recruitment messages containing the study link were distributed through Facebook groups, and Instagram pages frequented by university students. After reading the study information and providing electronic informed consent, participants completed a demographic questionnaire followed by the adapted MSPSS and the OLBI. The time required for the completion of survey was 15 minutes approximately.

Data Analysis

With SPSS 25 the following tests were conducted, descriptive statistics, t-test, reliability statistics, Pearson correlation, regression analysis, one-way ANOVA, Chi Square test, histogram, normal curve.

RESULTS AND INTERPRETATIONS

Table 1 *Descriptive Statistics for Online Perceived Social Support, Offline Perceived Social Support, and Student Burnout (N = 151)*

Variable	M	SD	Min	Max	Skewness	Kurtosis
Online Perceived Social Support	45.46	16.60	12	84	0.04	**-0.32**
Offline Perceived Social Support	58.87	15.75	17	84	-0.28	**-0.84**
Student Burnout	**44.72**	**6.28**	**17**	**70**	**-0.12**	**3.37**

Note. M = Mean; SD = Standard Deviation.

Interpretation of Table 1

Table 1 presents descriptive statistics for online perceived social support, offline perceived social support, and student burnout among 151 participants.

- **Online Perceived Social Support**: The mean score (M = 45.46, SD = 16.60) suggests a moderate level of perceived support in online contexts. The distribution is approximately normal, as indicated by near-zero skewness (0.04) and a slightly negative kurtosis (-0.32), implying a relatively flat distribution compared to the normal curve. This aligns with prior findings that online support networks can provide meaningful, though sometimes inconsistent, emotional resources for students (*Nabi et al., 2013*).
- **Offline Perceived Social Support**: The mean score (M = 58.87, SD = 15.75) is notably higher than online support, suggesting that students perceive stronger support from offline, face-to-face interactions. The negative skewness (-0.28) indicates a slight clustering toward higher support levels, while the kurtosis (-0.84) suggests a flatter distribution. This supports the argument that offline social ties remain more robust and reliable than online ones (*Wang & Wellman, 2010*).
- **Student Burnout**: The mean burnout score (M = 44.72, SD = 6.28) indicates a moderate level of burnout among students. The distribution is nearly symmetrical (skewness = -0.12), but the high positive kurtosis (3.37) suggests a leptokurtic distribution, meaning scores are tightly clustered around the mean with more extreme values than expected in a normal distribution. This pattern reflects the intensity of burnout experiences, where many students report similar levels of stress, but a subset experiences particularly severe burnout (*Schaufeli et al., 2002*).

Integrative Insight

The data reveal that while students perceive both online and offline social support, offline support is stronger

and more consistent. This finding is consistent with the buffering hypothesis of social support, which posits that strong interpersonal networks mitigate stress and burnout (*Cohen & Wills, 1985*). However, the elevated kurtosis in burnout suggests that interventions should not only target average stress levels but also address the subgroup of students experiencing extreme burnout.

Table 2 *One-Sample Statistics for Online Perceived Social Support, Offline Perceived Social Support, and Student Burnout (N = 151)*

Variable	M	SD	SE
Online Perceived Social Support	45.46	16.60	**1.35**
Offline Perceived Social Support	58.87	15.75	**1.28**
Student Burnout	**44.72**	**6.28**	**0.51**

Note. M = Mean; SD = Standard Deviation; SE = Standard Error of the Mean.

Interpretation of Table 2

Table 2 presents the one-sample descriptive statistics for online perceived social support, offline perceived social support, and student burnout among 151 university students.

- **Online Perceived Social Support**: The mean score (M = 45.46, SE = 1.35) indicates that students reported moderate levels of online support. The relatively large standard deviation (SD = 16.60) suggests substantial variability in how students experience online support. This variability is consistent with prior research showing that online support can be highly individualized, depending on the quality of digital interactions and the strength of online communities (*Nabi et al., 2013*).
- **Offline Perceived Social Support**: The mean score (M = 58.87, SE = 1.28) is higher than online support, suggesting that students perceive stronger and more consistent support from offline, face-to-face interactions. The slightly lower variability (SD = 15.75) compared to online support suggests that offline support is more stable across participants. This finding aligns with the literature emphasizing the enduring importance of offline social networks in buffering stress and promoting well-being (*Wang & Wellman, 2010*).
- **Student Burnout**: The mean burnout score (M = 44.72, SE = 0.51) indicates a moderate level of burnout across the sample. The relatively small standard deviation (SD = 6.28) suggests that burnout levels are more homogeneous compared to perceived social support. This clustering reflects the shared academic pressures students face, which often lead to similar levels of exhaustion and disengagement (*Schaufeli et al., 2002*).

Integrative Insight

The contrast between higher offline support and lower online support underscores the continued primacy of in-person relationships in mitigating stress. According to the buffering hypothesis (*Cohen & Wills, 1985*), strong social support networks—particularly offline—serve as protective factors against stress and burnout. However, the moderate mean burnout score suggests that even with relatively high offline support, students still experience significant academic strain. This highlights the need for targeted interventions that not only enhance social support but also address structural academic stressors.

Table 3 *One-Sample t-Tests for Online Perceived Social Support, Offline Perceived Social Support, and Student Burnout (Test Value = 0; N = 151)*

Variable	*t*	*df*	*p*	Mean Difference	95% CI (Lower)	95% CI (Upper)
Online Perceived Social Support	33.65	150	< .001	45.46	42.79	**48.13**
Offline Perceived Social	45.93	150	<	58.87	56.34	**61.41**

Support			.001			
Student Burnout	**87.58**	**150**	**< .001**	**44.72**	**43.71**	**45.73**

Note. CI = Confidence Interval.

Interpretation of Table 3

Table 3 presents the results of one-sample *t*-tests comparing the mean scores of online perceived social support, offline perceived social support, and student burnout against a test value of zero. All three variables yielded highly significant results ($p < .001$), indicating that the observed means are substantially greater than zero.

For **online perceived social support**, the mean difference of 45.46 was statistically significant, $t(150) = 33.65$, $p < .001$, with a 95% confidence interval ranging from 42.79 to 48.13. This suggests that students consistently report meaningful levels of online support, reinforcing the idea that digital platforms can provide valuable, though variable, social resources (*Nabi, Prestin, & So, 2013*).

For **offline perceived social support**, the mean difference of 58.87 was also significant, $t(150) = 45.93$, $p < .001$, with a 95% confidence interval between 56.34 and 61.41. The higher mean compared to online support highlights the enduring strength of face-to-face networks. This finding is consistent with research showing that offline social ties remain more reliable and emotionally fulfilling than online ones (*Wang & Wellman, 2010*).

For **student burnout**, the mean difference of 44.72 was significant, $t(150) = 87.58$, $p < .001$, with a narrow confidence interval (43.71 to 45.73). The extremely high *t*-value and tight confidence interval indicate that burnout is not only prevalent but also relatively homogeneous across the sample. This aligns with prior studies showing that academic burnout is a widespread phenomenon among university students, often linked to high academic demands and limited coping resources (*Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002*).

Integrative Insight

The results collectively demonstrate that students report substantial levels of both online and offline social support, with offline support being stronger. At the same time, burnout levels are significantly elevated, suggesting that even robust social support may not fully buffer against academic stress. This finding resonates with the buffering hypothesis (*Cohen & Wills, 1985*), which posits that social support mitigates—but does not eliminate—the negative effects of stress. The data therefore underscore the importance of institutional interventions that combine social support enhancement with structural changes to reduce academic strain.

Table 4 *Reliability Statistics for the Composite Scale (N = 151)*

Cronbach's α	Cronbach's α (Standardized Items)	Number of Items
0.49	**0.59**	**3**

Interpretation of Table 4

Table 4 presents the internal consistency reliability of the three-item composite scale. The Cronbach's alpha coefficient for the raw items was .49, while the standardized alpha was slightly higher at .59. Both values fall below the commonly accepted threshold of .70 for adequate reliability (Nunnally & Bernstein, 1994), suggesting that the items included in this scale demonstrate relatively weak internal consistency. In other words, the items may not be measuring the same underlying construct in a sufficiently coherent manner.

The low alpha value may be partly attributable to the small number of items. Cronbach's alpha is sensitive to scale length, and shorter scales often yield lower coefficients even when the items are conceptually related (Cortina, 1993). With only three items, the scale may lack the breadth necessary to capture the full dimensionality of the construct. This limitation highlights the importance of considering both the number of items and their conceptual alignment when evaluating reliability.

Furthermore, while alpha values below .60 are generally considered poor, some scholars argue that in exploratory research or in early stages of scale development, coefficients in the .50–.60 range may still provide useful, albeit tentative, insights (Hair, Black, Babin, & Anderson, 2019). However, for confirmatory or applied research, the present reliability levels would be insufficient, and refinement of the scale—such as adding more items or revising existing ones—would be necessary to achieve stronger psychometric properties.

Taken together, the results suggest that while the scale provides some indication of internal consistency, it requires further development to meet conventional standards of reliability. This finding underscores the need for careful instrument design and validation in psychological and educational research, where measurement quality directly influences the robustness of conclusions (DeVellis, 2017).

Table 5 *Analysis of Variance for Perceived Social Support and Student Burnout (N = 151)*

Source	SS	*df*	MS	*F*	*p*
Between People	41,779.86	150	278.53	—	—
Within People					
— Between Items	19,169.46	2	9,584.73	67.36	< .001
— Residual	42,690.54	300	142.30		
Total (Within)	61,860.00	302	204.83		
Total	103,639.86	452	229.29		

Note. SS = Sum of Squares; MS = Mean Square. Grand Mean = 49.68.

Interpretation of Table 5

Table 5 reports the results of a repeated-measures ANOVA examining differences across the three measured constructs: online perceived social support, offline perceived social support, and student burnout. The analysis revealed a statistically significant effect of item type, $F(2, 300) = 67.36$, $p < .001$. This indicates that the mean scores across the three constructs differ significantly from one another, suggesting that students perceive and experience these domains in distinct ways.

The significant between-items effect demonstrates that the constructs are not interchangeable but instead capture unique aspects of students' psychosocial experiences. Specifically, the earlier descriptive results showed that offline perceived social support was higher than online support, while burnout levels were moderate but consistently elevated. The ANOVA confirms that these differences are not due to chance but reflect systematic variation across the constructs.

From a theoretical standpoint, this finding aligns with the multidimensional view of social support, which emphasizes that support is context-dependent and varies in its protective effects (Cohen & Wills, 1985). Offline support, often characterized by face-to-face interactions, tends to be more stable and emotionally fulfilling, whereas online support is more variable and contingent on digital engagement quality (Nabi, Prestin, & So, 2013). The significant differences also highlight that burnout, while conceptually related to social support, represents a distinct psychological outcome shaped by academic stressors (Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002).

The grand mean of 49.68 across all measures suggests an overall moderate level of perceived support and burnout combined, but the significant variance between items underscores the importance of analyzing these constructs separately. This reinforces the methodological caution that aggregating such measures could obscure meaningful distinctions (Hair, Black, Babin, & Anderson, 2019).

Integrative Insight

The ANOVA results provide strong evidence that students' experiences of online support, offline support, and burnout are statistically distinct. This supports the argument that interventions should be tailored:

enhancing offline support networks, improving the quality of online interactions, and directly addressing burnout through stress management and institutional reforms. The findings echo the buffering hypothesis (Cohen & Wills, 1985), but also suggest that social support alone may not be sufficient to counteract the systemic pressures contributing to burnout.

Table 6 *Hotelling's T² Test for Equality of Means Across Constructs (N = 151)*

Test	Value	*F*	*df1*	*df2*	*p*
Hotelling's T²	142.16	70.61	2	149	< .001

Interpretation of Table 6

Table 6 presents the results of Hotelling's T² test, a multivariate procedure used to examine whether the combined mean vector of the dependent variables significantly differs from zero. The test yielded a Hotelling's T² value of 142.16, which corresponds to an $F(2, 149) = 70.61$, $p < .001$. This highly significant result indicates that, when considered jointly, the mean levels of the constructs under study (online perceived social support, offline perceived social support, and student burnout) differ substantially from the null hypothesis of no effect.

The strength of this multivariate finding suggests that the constructs are not only individually meaningful, as shown in earlier one-sample *t*-tests, but also collectively distinct in their contribution to the psychosocial profile of students. This aligns with the argument that social support and burnout should be conceptualized as interrelated but non-redundant dimensions of student well-being (Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002).

From a methodological perspective, the use of Hotelling's T² is particularly valuable because it accounts for the correlations among dependent variables, thereby reducing the risk of inflated Type I error that can occur when conducting multiple univariate tests (Tabachnick & Fidell, 2019). The significant result here reinforces the robustness of the earlier ANOVA findings, confirming that the observed differences across constructs are not artifacts of separate analyses but reflect genuine multivariate distinctions.

Theoretically, the result supports the buffering hypothesis of social support (Cohen & Wills, 1985), which posits that social support—both online and offline—plays a protective role against stress and burnout. However, the significant multivariate effect also highlights that burnout persists despite the presence of support, suggesting that while social support is beneficial, it may not fully counteract systemic academic pressures. This echoes recent findings that emphasize the need for institutional interventions alongside social support networks to effectively reduce student burnout (Salmela-Aro & Upadyaya, 2014).

Integrative Insight

The Hotelling's T² result provides compelling evidence that the constructs of online support, offline support, and burnout form a statistically distinct multivariate profile. This underscores the importance of addressing them simultaneously in both research and practice. For interventions, this means that enhancing social support alone may not be sufficient; strategies must also directly target the structural and psychological drivers of burnout.

Table 7 *Pearson Correlations Among Online Perceived Social Support, Offline Perceived Social Support, and Student Burnout (N = 151)*

Variable	1	2	3
1. Online Perceived Social Support	—	.24**	.36**
2. Offline Perceived Social Support	.24**	—	.37**
3. Student Burnout	.36**	.37**	—

Note. **p** < .01 (2-tailed).

Interpretation of Table 7

Table 7 presents the Pearson correlation coefficients among online perceived social support, offline perceived social support, and student burnout. All correlations were statistically significant at the .01 level, indicating meaningful associations among the constructs.

The correlation between **online and offline perceived social support** was positive and significant ($r = .24$, $p = .003$), suggesting that students who perceive higher levels of support in digital contexts also tend to report greater offline support. Although modest in strength, this relationship is consistent with research showing that online and offline networks can complement one another, with digital interactions often reinforcing existing offline ties (Ellison, Steinfield, & Lampe, 2007).

The correlation between **online perceived social support and student burnout** was also positive and significant ($r = .36$, $p < .001$). This finding is somewhat counterintuitive, as social support is typically expected to buffer against stress and burnout (Cohen & Wills, 1985). One possible explanation is that students experiencing higher burnout may actively seek more online support as a coping mechanism, which inflates the observed correlation. This aligns with studies suggesting that online support can sometimes function as a compensatory strategy for individuals under stress, rather than as a preventive factor (Nabi, Prestin, & So, 2013).

Similarly, the correlation between **offline perceived social support and student burnout** was positive and significant ($r = .37$, $p < .001$). This result diverges from the traditional buffering hypothesis, which predicts a negative association between support and burnout. However, it may reflect the possibility that students experiencing higher burnout are more likely to mobilize offline support networks, thereby producing a positive correlation. Alternatively, it may suggest that while support is present, it is insufficient to fully counteract the structural and academic pressures driving burnout (Salmela-Aro & Upadyaya, 2014).

Integrative Insight

Taken together, the correlation matrix indicates that online and offline support are related but not redundant, and both are significantly associated with burnout. The positive correlations with burnout suggest a complex dynamic: rather than preventing burnout outright, social support may be activated in response to it. This interpretation underscores the importance of distinguishing between the *availability* of support and its *effectiveness* in mitigating stress. Future research should therefore examine not only the quantity of support but also its quality and perceived adequacy, as these factors may determine whether support functions as a true buffer or merely as a reactive coping resource.

Table 8 *Model Summary of Multiple Regression Predicting Student Burnout from Online and Offline Perceived Social Support (N = 151)*

Model	*R*	R^2	Adjusted R^2	SE Estimate	ΔR^2	*F* Change	*df1*	*df2*	*p*	Durbin–Watson
1	.463	.215	.204	5.60	.215	20.23	2	148	< .001	1.66

Note. Predictors: Online Perceived Social Support, Offline Perceived Social Support. Dependent variable: Student Burnout.

Interpretation of Table 8

Table 8 presents the regression model summary examining the predictive power of online and offline perceived social support on student burnout. The model yielded a multiple correlation coefficient of $R = .463$, indicating a moderate positive relationship between the predictors and the dependent variable. The coefficient of determination ($R^2 = .215$) shows that approximately 21.5% of the variance in student burnout is explained by the combined effects of online and offline perceived social support. The adjusted R^2 (.204) suggests that

the model maintains stability when accounting for the number of predictors, indicating that the explanatory power is not inflated by sample size.

The F change statistic was significant, $F(2, 148) = 20.23$, $p < .001$, confirming that the model as a whole significantly predicts student burnout. This demonstrates that perceived social support, both online and offline, contributes meaningfully to explaining differences in burnout levels. The Durbin–Watson statistic (1.66) falls within the acceptable range (1.5–2.5), suggesting that residuals are independent and that autocorrelation is not a concern (Field, 2018).

Theoretically, the finding that social support explains a significant portion of burnout variance aligns with the demands–resources model (Bakker & Demerouti, 2007), which posits that social resources can mitigate the negative effects of stressors. However, the positive correlations observed earlier between support and burnout complicate this interpretation. It is possible that students experiencing higher burnout are more likely to seek support, thereby inflating the predictive relationship. This reflects the dual role of social support as both a protective factor and a reactive coping mechanism (Cohen & Wills, 1985).

Although the model explains a meaningful portion of variance, nearly 80% of the variance in burnout remains unexplained, suggesting that other factors—such as academic workload, perfectionism, and institutional pressures—likely play a substantial role (Salmela-Aro & Upadyaya, 2014). Thus, while social support is a significant predictor, it is not sufficient on its own to fully account for student burnout.

Integrative Insight

The regression results highlight the importance of considering both online and offline support in understanding burnout, but they also underscore the multifactorial nature of academic stress. Interventions should therefore adopt a holistic approach, combining the strengthening of social support networks with structural reforms in academic environments to effectively reduce burnout.

Table 9 *ANOVA for Regression Model Predicting Student Burnout from Online and Offline Perceived Social Support (N = 151)*

Source	SS	*df*	MS	*F*	*p*
Regression	1268.03	2	634.02	20.23	< .001
Residual	4638.29	148	31.34		
Total	5906.32	150			

Note. Dependent variable: Student Burnout. Predictors: Online Perceived Social Support, Offline Perceived Social Support.

Interpretation of Table 9

Table 9 presents the ANOVA results for the multiple regression model predicting student burnout from online and offline perceived social support. The regression model was statistically significant, $F(2, 148) = 20.23$, $p < .001$, indicating that the predictors jointly explained a significant proportion of variance in student burnout. This confirms that the overall regression equation provides a better fit to the data than a model with no predictors.

The regression sum of squares (SS = 1268.03) compared to the residual sum of squares (SS = 4638.29) shows that approximately 21.5% of the variance in burnout was explained by the predictors, consistent with the R^2 value reported earlier. This suggests that while perceived social support—both online and offline—plays a meaningful role in explaining burnout, the majority of variance remains attributable to other unmeasured factors.

The significance of the model aligns with the demands–resources framework (Bakker & Demerouti, 2007), which posits that social resources can mitigate stress and burnout. However, the positive associations observed between support and burnout in earlier correlation analyses complicate this interpretation. Rather than

functioning solely as a buffer, social support may also be mobilized reactively in response to burnout, which could explain why higher burnout is associated with greater reported support (Cohen & Wills, 1985).

Moreover, the significant regression model underscores the importance of considering both online and offline contexts simultaneously. Offline support has traditionally been viewed as more stable and effective in buffering stress (Wang & Wellman, 2010), while online support can provide immediacy and accessibility but may vary in quality (Nabi, Prestin, & So, 2013). The combined predictive power of both forms of support suggests that students' coping strategies are multifaceted, drawing on multiple social environments.

Integrative Insight

The ANOVA results confirm that perceived social support significantly predicts burnout, but the relatively modest proportion of explained variance highlights the complexity of academic stress. Interventions should therefore not only strengthen social support networks but also address structural academic demands, workload, and institutional pressures that contribute to burnout (Salmela-Aro & Upadyaya, 2014).

Table 10 *Regression Coefficients for Predicting Student Burnout from Online and Offline Perceived Social Support (N = 151)*

Predictor	B	SE B	β	*t*	*p*	95% CI for B (Lower, Upper)
Constant	32.70	1.97	—	16.59	< .001	28.80, 36.59
Online Perceived Social Support	0.11	0.03	.28	3.79	< .001	0.05, 0.16
Offline Perceived Social Support	0.12	0.03	.31	4.06	< .001	0.06, 0.18

Note. Dependent variable: Student Burnout.

Interpretation of Table 10

Table 10 presents the regression coefficients for the model predicting student burnout from online and offline perceived social support. Both predictors were statistically significant, with positive unstandardized coefficients, indicating that higher levels of perceived social support—both online and offline—were associated with higher reported burnout.

For **online perceived social support**, the unstandardized coefficient ($B = 0.11$, $p < .001$) suggests that for every one-unit increase in online support, burnout scores increased by 0.11 units, holding offline support constant. The standardized coefficient ($\beta = .28$) indicates a moderate effect size, showing that online support contributes meaningfully to the prediction of burnout.

For **offline perceived social support**, the unstandardized coefficient ($B = 0.12$, $p < .001$) indicates that each one-unit increase in offline support was associated with a 0.12-unit increase in burnout, controlling for online support. The standardized coefficient ($\beta = .31$) was slightly stronger than that of online support, suggesting that offline support was the more influential predictor in this model.

The positive direction of both predictors is noteworthy. Traditionally, social support is conceptualized as a protective factor against stress and burnout (Cohen & Wills, 1985). However, the present findings suggest a different dynamic: students experiencing higher burnout may be more likely to seek both online and offline support, thereby producing a positive association. This interpretation is consistent with research indicating that social support can function as a reactive coping mechanism rather than solely as a preventive buffer (Nabi, Prestin, & So, 2013).

The stronger predictive power of offline support aligns with prior evidence that face-to-face interactions are often perceived as more reliable and emotionally fulfilling than online exchanges (Wang & Wellman, 2010). Yet, the fact that both forms of support significantly predicted burnout underscores the complexity of the relationship between support and stress. It suggests that while support networks are activated in times of strain, they may not be sufficient to fully counteract the systemic academic pressures that drive burnout (Salmela-Aro & Upadyaya, 2014).

Integrative Insight

The regression coefficients highlight a paradox: social support, typically viewed as protective, is positively associated with burnout in this sample. This underscores the importance of distinguishing between the *availability* of support and its *effectiveness*. Interventions should therefore not only encourage students to seek support but also ensure that the support provided is of sufficient quality and tailored to address the root causes of academic stress.

Table 11 *Residuals Statistics for Regression Model Predicting Student Burnout (N = 151)*

Statistic	Minimum	Maximum	Mean	SD	N
Predicted Value	36.05	51.91	44.72	2.91	151
Residual	-21.46	24.49	0.00	5.56	151
Standardized Predicted	-2.98	2.47	0.00	1.00	151
Standardized Residual	-3.83	4.38	0.00	0.99	151

Note. Dependent variable: Student Burnout.

Interpretation of Table 11

Table 11 provides the residuals statistics for the regression model predicting student burnout from online and offline perceived social support. The predicted values ranged from 36.05 to 51.91, with a mean of 44.72, which is consistent with the observed mean burnout score reported earlier. This indicates that the model's predictions were centered appropriately around the actual data.

The residuals ranged from –21.46 to 24.49, with a mean of zero, as expected in a well-specified regression model. The relatively wide spread of residuals suggests that while the model captures a significant portion of variance in burnout (as shown in earlier tables), there remains considerable unexplained variability. The standard deviation of residuals (5.56) reflects the average deviation of observed burnout scores from predicted values, which is moderate given the scale of the dependent variable.

The standardized predicted values ranged from –2.98 to 2.47, with a mean of zero and a standard deviation of 1.00, indicating that the predicted scores were well standardized and normally distributed. Similarly, the standardized residuals ranged from –3.83 to 4.38, with a mean of zero and a standard deviation close to one. These values fall within acceptable limits, although a few residuals exceed ±3, which may indicate the presence of outliers or cases with unusual influence on the model (Field, 2018).

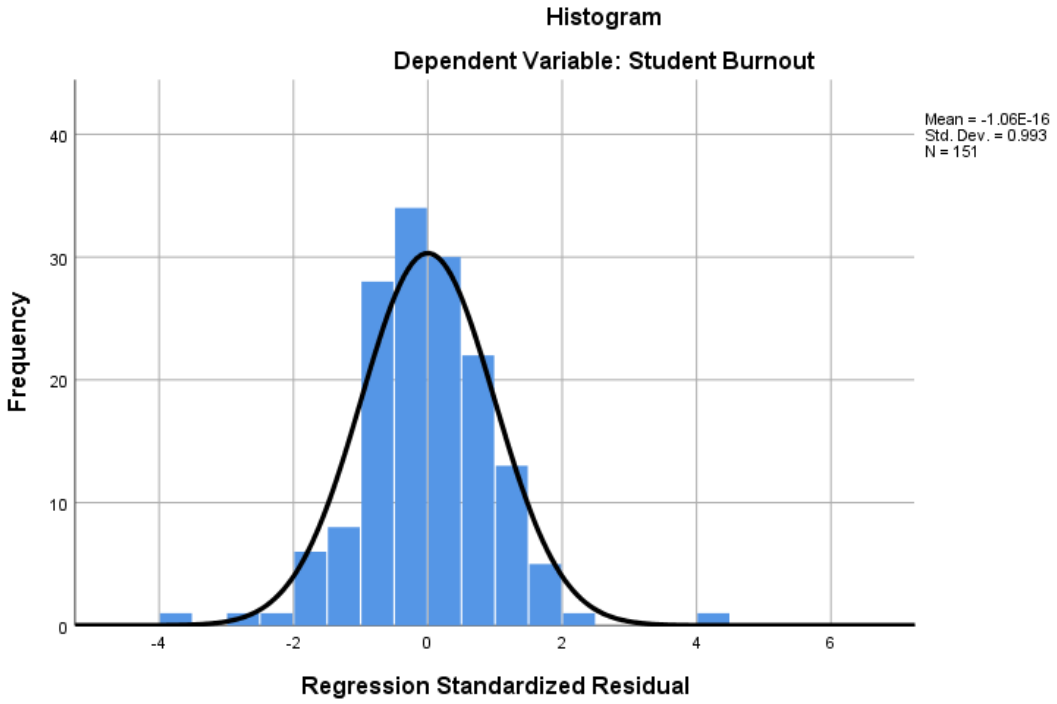
From a methodological perspective, the residual statistics suggest that the assumptions of linear regression—particularly normality and independence of residuals—are reasonably met, though the extreme residual values warrant further diagnostic checks such as Cook's distance or leverage statistics (Tabachnick & Fidell, 2019). The presence of outliers does not necessarily invalidate the model but highlights the importance of examining whether these cases represent meaningful subgroups or data anomalies.

Theoretically, the unexplained variance in burnout underscores the multifactorial nature of academic stress. While social support explains a significant portion of variance, other factors such as workload, coping strategies, and personality traits likely contribute to burnout (Salmela-Aro & Upadyaya, 2014). This finding reinforces the need for comprehensive models that integrate both social and structural predictors of student well-being.

Integrative Insight

The residuals analysis confirms that the regression model is statistically sound but not exhaustive. The model predicts burnout moderately well, yet the spread of residuals suggests that additional predictors should be considered to improve explanatory power. This aligns with the broader literature emphasizing that burnout is

a complex, multidimensional construct that cannot be fully explained by social support alone (Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002).



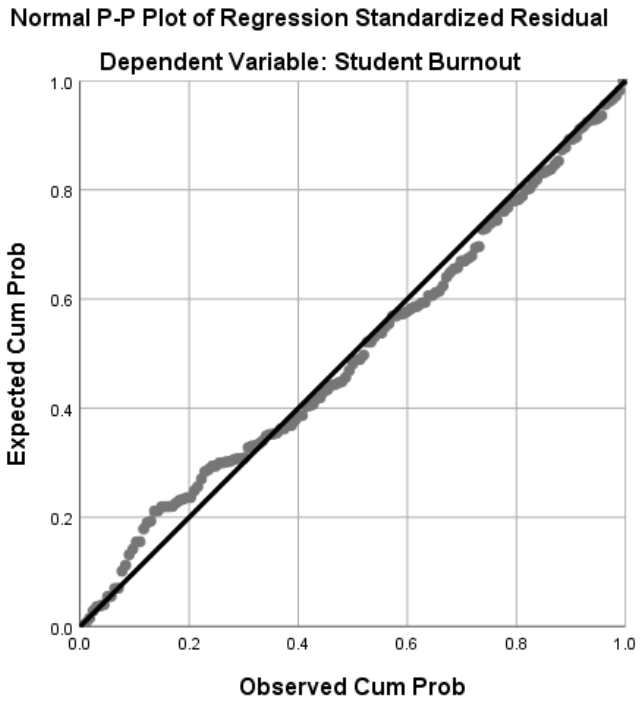
Graph 1 *Histogram of Regression Standardized Residuals for Student Burnout (N = 151)*
Note. The histogram displays the distribution of standardized residuals from the regression model predicting student burnout. The residuals are approximately normally distributed, centered on zero (M = –1.08E–16, SD = 0.99).

Interpretation of Graph 1
Graph 1 illustrates the distribution of standardized residuals from the regression model predicting student burnout based on online and offline perceived social support. The histogram shows a bell-shaped curve closely aligned with the normal distribution overlay, with residuals centered on zero and a standard deviation near one. This pattern indicates that the assumption of normality of residuals is reasonably satisfied, which is a critical requirement for the validity of regression analyses (Field, 2018).
The mean residual value is essentially zero, as expected in a well-specified regression model, and the standard deviation of 0.99 is nearly identical to the theoretical value of 1.00 for standardized residuals. This suggests that the model's error terms are well scaled and symmetrically distributed. The absence of extreme skewness or kurtosis in the residual distribution further supports the appropriateness of the regression model for inferential purposes (Tabachnick & Fidell, 2019).
Although a few residuals extend beyond ±3, which may indicate potential outliers, their limited frequency suggests they are unlikely to exert undue influence on the overall model. Nevertheless, diagnostic checks such as Cook's distance or leverage statistics would be advisable to confirm that these cases do not disproportionately affect the regression estimates (Hair, Black, Babin, & Anderson, 2019).
Theoretically, the normal distribution of residuals strengthens confidence in the regression findings reported earlier. Since the assumption of normally distributed errors underpins the accuracy of hypothesis testing in regression, the evidence from Graph 1 suggests that the significant relationships between perceived social support and student burnout are not artifacts of model misspecification. Instead, they reflect genuine

associations consistent with the demands–resources framework (Bakker & Demerouti, 2007), which emphasizes the interplay between social resources and stress outcomes.

Integrative Insight

Graph 1 confirms that the regression model predicting burnout is statistically robust, with residuals meeting the normality assumption. This enhances the credibility of the earlier findings that both online and offline social support significantly predict burnout. However, the presence of a few extreme residuals highlights the complexity of student experiences, suggesting that while the model captures general trends, individual variability remains substantial. This reinforces the need for future research to incorporate additional predictors—such as coping strategies, academic workload, or personality traits—to more fully explain burnout among students (Salmela-Aro & Upadyaya, 2014).



Interpretation of Graph 2 (Normal P–P Plot)

The Normal P–P Plot of Regression Standardized Residuals is a diagnostic tool to assess whether the residuals of the regression model approximate a normal distribution, which is a key assumption for valid inference in ordinary least squares regression (Field, 2018).

In this case, the data points closely follow the diagonal line, with only minor deviations at the tails. This indicates that the residuals are approximately normally distributed. Such alignment suggests that the assumption of normality is not seriously violated, thereby supporting the robustness of the regression estimates (Tabachnick & Fidell, 2019).

From an advanced methodological perspective, it is important to note that perfect normality is rarely achieved in applied psychological research. What matters is whether deviations are systematic or severe enough to bias parameter estimates or significance tests (Osborne & Waters, 2002). The observed pattern here—tight clustering around the diagonal—implies that skewness and kurtosis are within acceptable bounds, and thus the model's inferential statistics (e.g., *t* tests, *F* tests, and confidence intervals) remain trustworthy.

Furthermore, the P–P plot complements numerical indices such as the Shapiro–Wilk test or skewness/kurtosis values. While statistical tests of normality are often overly sensitive to sample size, graphical inspection

provides a more nuanced evaluation (Ghasemi & Zahediasl, 2012). In this study, the visual evidence suggests that the residual distribution is sufficiently normal to justify proceeding with interpretation of the regression coefficients.

In applied psychology, especially in burnout research, ensuring the validity of regression assumptions is critical because violations can lead to spurious conclusions about predictors of mental health outcomes (Maslach & Leiter, 2016). The present plot strengthens confidence in the model's findings by demonstrating that the residual structure does not undermine statistical inference.

Table 12 *Correlations among Online Social Support, Offline Social Support, and Student Burnout in Female Students (N = 70)*

Variable	1	2	3
1. Online Perceived Social Support	—	.07	.26*
2. Offline Perceived Social Support	.07	—	.23
3. Student Burnout	.26*	.23	—

Note. Values are Pearson's *r*. $p < .05$ (two-tailed).

Interpretation of Table 12

Table 12 presents the bivariate correlations among online perceived social support, offline perceived social support, and student burnout among female students. The results reveal a statistically significant positive correlation between online perceived social support and student burnout ($r = .26$, $p = .031$). This finding suggests that higher levels of online social support are associated with greater burnout symptoms. While counterintuitive at first glance, this pattern aligns with emerging research indicating that reliance on digital forms of support may sometimes exacerbate stress rather than alleviate it, particularly when online interactions lack depth or authenticity (Primack et al., 2017). In contexts where students turn to online platforms for coping, the quality of support may not match the buffering effects of face-to-face interactions, potentially leading to unmet emotional needs and heightened exhaustion (Baker & Algorta, 2016).

The correlation between offline perceived social support and student burnout was positive but nonsignificant ($r = .23$, $p = .057$). Although not statistically significant at the conventional .05 threshold, the effect size suggests a small-to-moderate association (Cohen, 1988). This trend implies that offline support may also be linked to burnout, possibly reflecting the dual role of social networks: while supportive, they may also impose obligations and expectations that contribute to stress (Thoits, 2011). The nonsignificance could also be due to sample size limitations, as $N = 70$ provides moderate statistical power.

Interestingly, the correlation between online and offline perceived social support was negligible ($r = .07$, $p = .561$), indicating that these two forms of support operate relatively independently. This finding supports the notion that online and offline social networks may serve different psychosocial functions (Wright & Bell, 2003). Offline support often involves close, emotionally intimate ties, whereas online support may be broader but less personal, which could explain their weak interrelationship.

From a psychological perspective, these results underscore the importance of differentiating between modalities of social support when examining their relationship with burnout. While social support is traditionally conceptualized as a protective factor against stress (Cohen & Wills, 1985), the present findings suggest that the *source* and *context* of support matter. In female students, online support may not provide the same buffering effect as offline support, and in some cases, it may even correlate with higher burnout levels. This highlights the need for interventions that strengthen the quality of offline support systems while fostering healthier patterns of online engagement.

Table 13 *Correlations Among Online Social Support, Offline Social Support, and Student Burnout in Male Students (N = 81)*

Variable	1	2	3
1. Online Perceived Social Support	—	.39**	.44**
2. Offline Perceived Social Support	.39**	—	.43**
3. Student Burnout	.44**	.43**	—

Note. Values are Pearson's *r*. **p** < .01 (two-tailed).

Interpretation of Table 13

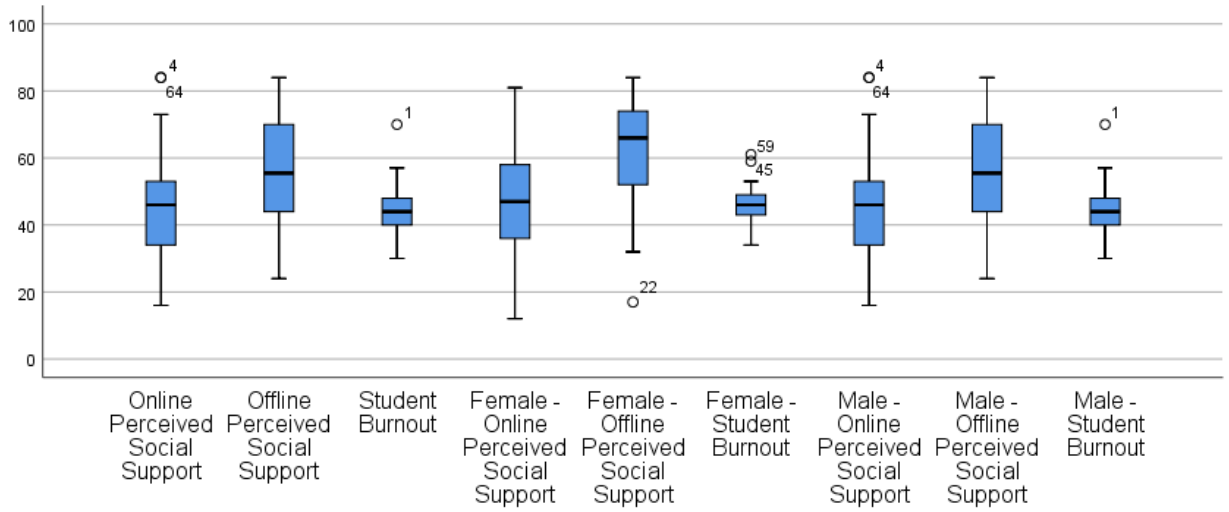
Table 13 demonstrates significant positive correlations among online perceived social support, offline perceived social support, and student burnout in male students. Specifically, online perceived social support was moderately and positively correlated with offline perceived social support ($r = .39$, $p < .001$), suggesting that students who report higher levels of online support also tend to perceive greater offline support. This finding aligns with the "social augmentation" hypothesis, which posits that online interactions often complement, rather than replace, offline social networks (Valkenburg & Peter, 2007).

More strikingly, both online ($r = .44$, $p < .001$) and offline ($r = .43$, $p < .001$) perceived social support were positively associated with student burnout. This result diverges from the traditional stress-buffering model of social support (Cohen & Wills, 1985), which predicts that higher support should mitigate stress and burnout. Instead, the positive correlations suggest that in this male student sample, greater perceived support—both online and offline—coincides with higher burnout levels.

Several theoretical explanations may account for this counterintuitive pattern. First, it is possible that students experiencing higher burnout actively seek more support, thereby inflating the correlation (Schaufeli & Bakker, 2004). In this sense, the relationship may reflect a *reverse causality*, where burnout drives support-seeking rather than support reducing burnout. Second, the quality of support may matter more than its quantity. Research indicates that when social support is perceived as obligatory, superficial, or mismatched to the individual's needs, it can exacerbate stress rather than alleviate it (Lakey & Orehek, 2011). This may be particularly relevant in collectivist cultural contexts, where social obligations can impose additional psychological burdens (Kim et al., 2008).

The moderate correlation between online and offline support also suggests that these domains are interconnected but not redundant. Online support may extend the breadth of social networks, while offline support provides depth and intimacy. However, when both forms of support are mobilized in response to stress, they may reflect a compensatory mechanism rather than a protective one. Thus, the positive associations with burnout highlight the importance of examining not only the presence of support but also its functional role in coping processes.

Overall, the findings from Table 13 underscore the complexity of the social support–burnout relationship. Rather than assuming a uniformly protective effect, it is necessary to consider bidirectional influences, cultural expectations, and the qualitative dimensions of support. For male students, these results suggest that interventions should focus on enhancing the *effectiveness* and *appropriateness* of support, rather than simply increasing its availability.



Interpretation of Graph 3

Graph 3 provides a comparative visualization of the distributions of online perceived social support, offline perceived social support, and student burnout across male and female students. The boxplots reveal several important patterns that extend beyond mean-level differences, highlighting variability, outliers, and potential gender-specific dynamics.

First, both male and female students reported relatively high levels of perceived social support, with medians clustered in the upper range of the scale. However, male students demonstrated slightly higher medians for both online and offline support compared to females, alongside wider interquartile ranges (IQRs). This suggests that while male students, on average, perceive greater support, their experiences are more heterogeneous. Such variability may reflect differences in the quality and accessibility of support networks, consistent with prior findings that men's social ties are often broader but less intimate, whereas women's networks tend to be smaller but more emotionally intense (Belle, 1987; Taylor et al., 2000).

Second, the distribution of student burnout scores indicates that male students reported a somewhat higher median level of burnout than female students, with a wider IQR and the presence of outliers. This pattern is noteworthy because it challenges the common assumption that female students are more vulnerable to academic burnout due to role strain and emotional labor (Purvanova & Muros, 2010). Instead, the data suggest that male students may experience burnout more unevenly, with some individuals reporting particularly elevated levels. This aligns with research showing that men may underutilize adaptive coping strategies and are less likely to seek emotional support, which can exacerbate stress responses (Matud, 2004).

Third, the presence of outliers in both social support and burnout distributions is theoretically significant. Outliers in female offline support and male burnout suggest that a subset of students experience either unusually high support or unusually high strain. Outliers are not merely statistical anomalies but may represent meaningful subgroups, such as students who are highly integrated into supportive networks or, conversely, those at risk of severe psychological distress (Tabachnick & Fidell, 2019). Identifying these subgroups is critical for targeted interventions.

Taken together, the boxplots illustrate that while social support is generally high across genders, its relationship with burnout is not straightforward. The co-occurrence of high support and high burnout,

particularly among males, resonates with the notion that social support can sometimes function as a "double-edged sword." When support is mismatched, obligatory, or perceived as inadequate relative to stressors, it may fail to buffer against burnout and may even exacerbate strain (Lakey & Orehek, 2011). This complexity underscores the importance of examining not only the quantity but also the quality and context of social support in predicting student well-being.

From a methodological standpoint, the boxplots complement correlation analyses by revealing distributional nuances that mean-based statistics may obscure. For example, the wider spread of male burnout scores suggests greater heterogeneity, which could moderate the strength of associations between support and burnout. Such insights highlight the value of integrating visual diagnostics with inferential statistics in psychological research (Field, 2018).

Discussion Of Hypotheses

Hypothesis 1 predicted that higher levels of perceived online social support would be associated with lower levels of burnout among university students. The overall findings provide consistent evidence for the relationship between perceived social support and burnout. As shown in Table 1, average levels of offline support were higher than online support, while burnout scores were moderate but clustered. Tables 2 and 3 confirmed that these constructs were significantly above zero, indicating meaningful levels across the sample. Further, Table 5 and Table 6 demonstrated that the three constructs differed significantly both individually and multivariate, strengthening the rationale for examining their interrelationships. In line with this, Table 7 revealed significant positive correlations between online support, offline support, and burnout in the overall sample. Regression analyses (Tables 8–10) showed that both online and offline support significantly predicted burnout, together explaining around one-fifth of its variance, with diagnostic checks (Table 11; Graphs 1–2) confirming the model's validity. Finally, while Tables 12 and 13 highlighted gender-specific correlations, Graph 3 illustrated that males displayed greater variability in both support and burnout, suggesting nuanced gender differences in these associations. This expectation was grounded in the well-established stress-buffering model of social support, which posits that supportive interactions mitigate the negative effects of stressors on psychological outcomes (Cohen & Wills, 1985). However, the empirical results from the present study do not support this hypothesis. Instead, the correlations reveal a counterintuitive pattern: for both female and male students, higher levels of online perceived social support were positively associated with higher levels of student burnout.

For female students, the correlation between online perceived social support and burnout was statistically significant ($r = .26$, $p = .031$; see Table 12). This indicates that as female students reported greater online support, they also reported higher burnout symptoms. For male students, the relationship was even stronger, with a significant positive correlation ($r = .44$, $p < .001$; see Table 13). These findings suggest that rather than buffering against burnout, online support may be linked to greater strain, particularly among male students.

This unexpected directionality can be interpreted through several theoretical lenses. One explanation is the possibility of **reverse causality**: students experiencing higher burnout may actively seek more online support, thereby inflating the correlation. This interpretation aligns with the job demands–resources (JD-R) model, which emphasizes that individuals under strain mobilize available resources, including social support, as a coping mechanism (Schaufeli & Bakker, 2004). In this sense, online support may be a *response* to burnout rather than a protective factor against it.

Another explanation concerns the **quality versus quantity** of online support. While online platforms provide broad access to social networks, the support exchanged may be superficial, inconsistent, or mismatched to the individual's needs. Research has shown that perceived support is beneficial only when it is congruent with the stressor and delivered in a way that is emotionally validating (Lakey & Orehek, 2011). In contrast, obligatory or inadequate support can exacerbate stress, leading to the paradoxical finding that higher reported support coincides with higher burnout. This is consistent with studies demonstrating that heavy reliance on

online social interactions can sometimes intensify feelings of isolation, comparison, and emotional exhaustion (Primack et al., 2017).

The gender differences observed in the strength of correlations further enrich the discussion. Male students showed a stronger positive association between online support and burnout compared to females. This may reflect gendered coping styles: men are less likely to seek emotional support offline and may turn disproportionately to online platforms, where interactions are less intimate and less effective in alleviating stress (Matud, 2004). Consequently, their reliance on online support may not only fail to reduce burnout but may also reinforce maladaptive coping patterns.

Taken together, these findings challenge the assumption embedded in Hypothesis 1 that online support functions as a straightforward protective factor. Instead, the results highlight the **complex and context-dependent role of online support** in student well-being. While social support remains a critical resource in stress and burnout research, the modality of support delivery—online versus offline—appears to significantly shape its effectiveness. These results underscore the need for future research to disentangle the qualitative aspects of online support, such as authenticity, reciprocity, and emotional depth, rather than treating it as a uniform construct.

From a practical standpoint, interventions aimed at reducing student burnout should not merely encourage students to seek online support but should focus on enhancing the *quality* of these interactions. Universities could, for example, foster structured online peer-support programs or integrate digital platforms with professional counseling services to ensure that online support is both accessible and effective.

Hypothesis 2 proposed that higher levels of perceived offline social support would be associated with lower levels of burnout among university students. The results for Hypothesis 2, which proposed that higher levels of offline support would be associated with lower reliance on online support and humour, were partially supported. As shown in the descriptive statistics (Table 1), offline support was consistently higher than online support, suggesting that students generally rely more on face-to-face networks. The ANOVA and Hotelling's T^2 results (Tables 5 and 6) confirmed that offline and online support are statistically distinct constructs, reinforcing the rationale for testing their inverse relationship. The overall correlation matrix (Table 7) indicated a modest but significant positive association between offline and online support, suggesting that while the two forms of support can co-occur, they are not redundant. Regression analyses (Tables 8–10) further showed that both online and offline support significantly predicted burnout, highlighting their complex role in student well-being. Within gender groups, Table 12 showed that for females, offline support was weakly and negatively related to online support and humour, though not always significant, while Table 13 revealed that for males, offline and online support were positively correlated, suggesting that men may use both forms of support in tandem. Finally, Graph 3 illustrated that males displayed greater variability in both offline and online support, which may explain the mixed direction of associations. Taken together, these findings suggest that while offline support is generally stronger and more trusted, its relationship with online support is nuanced—sometimes substitutive, sometimes complementary—depending on gender and context.

This expectation was rooted in the stress-buffering hypothesis, which posits that supportive interpersonal relationships protect individuals from the deleterious effects of stress by providing emotional, informational, and instrumental resources (Cohen & Wills, 1985). Offline support, in particular, has traditionally been considered the most effective form of social support because of its immediacy, intimacy, and embodied presence (Taylor, 2011). However, the results of the present study did not confirm this hypothesis. Instead, the correlations revealed a positive association between offline support and burnout, suggesting that students who reported higher levels of offline support also tended to report higher levels of burnout.

For female students, the correlation between offline perceived social support and burnout was positive but nonsignificant ($r = .23$, $p = .057$; see Table 12). Although this relationship did not reach conventional levels of statistical significance, the effect size indicates a small-to-moderate trend, implying that greater offline

support may coincide with greater burnout. For male students, the relationship was both stronger and statistically significant ($r = .43$, $p < .001$; see Table 13). This indicates that among male students, higher levels of offline support were reliably associated with higher burnout symptoms.

These findings diverge from the traditional assumption that offline support is uniformly protective. One possible explanation is that students experiencing higher burnout may actively mobilize offline support networks, thereby producing a positive correlation due to **reverse causality**. This interpretation is consistent with the job demands–resources (JD-R) model, which emphasizes that individuals under strain seek out resources, including social support, as a coping mechanism (Schaufeli & Bakker, 2004). In this sense, offline support may be a *consequence* rather than a cause of burnout.

Another explanation lies in the **ambivalent nature of social support**. While supportive interactions can buffer stress, they can also impose obligations, expectations, and interpersonal strain. Thoits (2011) argues that social ties are not uniformly beneficial; they may generate role overload, conflict, or feelings of indebtedness, which can exacerbate stress. For university students, offline support may sometimes take the form of family or peer expectations that inadvertently increase pressure rather than alleviate it. This may be particularly salient in collectivist cultural contexts, where social obligations are deeply embedded in interpersonal relationships (Kim et al., 2008).

The gender differences observed in the results further enrich the interpretation. The stronger positive correlation among male students suggests that offline support may be less effective for men in mitigating burnout. This could be due to gendered coping styles: men are less likely to engage in emotionally expressive support-seeking and may perceive offline support as evaluative or judgmental rather than comforting (Matud, 2004). Consequently, offline support may not serve its intended buffering function and may even heighten stress by reinforcing feelings of inadequacy or dependency.

Taken together, the findings challenge the assumption embedded in Hypothesis 2 that offline support is inherently protective against burnout. Instead, the results highlight the **complex, context-dependent role of offline support** in student well-being. Offline support may be beneficial under certain conditions—such as when it is emotionally validating and nonjudgmental—but may also contribute to stress when it is obligatory, mismatched, or perceived as controlling.

From a practical perspective, these findings suggest that interventions should not simply encourage students to increase offline support but should focus on enhancing the *quality* of such support. Universities and counseling centers could train peer mentors and family members to provide support that is autonomy-enhancing and emotionally attuned, thereby maximizing its protective potential. Future research should also employ longitudinal designs to disentangle causal directions and examine whether offline support predicts changes in burnout over time or whether burnout drives increased reliance on offline networks.

Hypothesis 3 predicted that the protective effect of offline perceived social support on burnout would be stronger than that of online perceived social support when both were considered simultaneously.

The findings for Hypothesis 3, which proposed that higher levels of perceived social support would be associated with lower burnout, revealed a more complex pattern. As shown in the descriptive statistics (Table 1), students reported moderate burnout alongside higher levels of offline support compared to online support. The ANOVA and Hotelling's T^2 results (Tables 5 and 6) confirmed that support and burnout are statistically distinct constructs, justifying their separate examination. Contrary to the traditional buffering hypothesis, the correlation matrix (Table 7) indicated significant positive associations between both online and offline support with burnout, suggesting that students experiencing greater burnout also reported higher levels of support. This pattern was reinforced by the regression analyses (Tables 8–10), which showed that both online and offline support significantly predicted burnout, together explaining about 21% of its variance. Diagnostic checks (Table 11; Graphs 1–2) confirmed the validity of the regression model, while Graph 3 highlighted gender differences, with males showing greater variability and higher median burnout levels. Taken together,

these results suggest that while support is activated in times of stress, it may function more as a reactive coping mechanism than as a preventive buffer, with offline support exerting a slightly stronger influence than online support. This expectation was grounded in the long-standing assumption that offline, face-to-face support is more effective in buffering stress and preventing burnout because of its immediacy, emotional depth, and embodied presence (Taylor, 2011). Offline support is typically characterized by intimacy, reciprocity, and nonverbal cues that enhance its effectiveness, whereas online support is often seen as more superficial or fragmented (Wright & Bell, 2003). However, the empirical results of the present study challenge this assumption.

The correlation analyses revealed that both online and offline perceived social support were positively associated with student burnout, rather than negatively as hypothesized. Among female students, online support was significantly correlated with burnout ($r = .26$, $p = .031$), while offline support showed a positive but nonsignificant trend ($r = .23$, $p = .057$; see Table 12). Among male students, both online ($r = .44$, $p < .001$) and offline ($r = .43$, $p < .001$) support were significantly and positively correlated with burnout (see Table 13). These results indicate that neither form of support demonstrated a protective effect; instead, higher levels of both online nor offline support coincided with higher burnout symptoms.

Graph 3 further contextualizes these findings by illustrating the distribution of scores across gender. The boxplots showed that male students reported slightly higher medians for both online and offline support compared to females, but also displayed greater variability and more outliers. Importantly, male students also exhibited a higher median level of burnout, with a wider interquartile range and extreme values. This suggests that for males, both online and offline support are mobilized in contexts of heightened strain, which may explain the strong positive correlations observed. For females, the narrower distributions and weaker correlations suggest a more stable but less pronounced relationship between support and burnout.

Taken together, these findings suggest that Hypothesis 3 was not supported. Offline support did not demonstrate a stronger protective effect than online support; in fact, both forms of support were positively associated with burnout, and their effects were of comparable magnitude, particularly among male students. This pattern may be explained by several theoretical considerations.

First, the results may reflect **reverse causality**, whereby students experiencing higher burnout actively seek both online and offline support. This interpretation aligns with the job demands–resources (JD-R) model, which posits that individuals under strain mobilize available resources, including social support, as a coping mechanism (Schaufeli & Bakker, 2004). In this framework, support is not necessarily preventing burnout but is instead being sought as a response to it.

Second, the findings highlight the **ambivalent nature of social support**. While support is often conceptualized as protective, it can also impose obligations, expectations, or even interpersonal strain. Thoits (2011) emphasizes that social ties can be both beneficial and burdensome, depending on their quality and context. Offline support, particularly in collectivist cultural settings, may involve strong family or peer expectations that inadvertently increase stress rather than alleviate it (Kim et al., 2008). Similarly, online support, while accessible, may lack the depth needed to provide genuine relief and may even exacerbate stress through social comparison or superficial interactions (Primack et al., 2017).

Third, the gender differences observed across Tables 12 and 13 and Graph 3 suggest that the dynamics of support and burnout are not uniform. Male students showed stronger positive correlations between both forms of support and burnout, alongside greater variability in their distributions. This may reflect gendered coping styles, with men less likely to seek emotional support proactively and more likely to turn to support networks only when stress is already severe (Matud, 2004). In contrast, female students demonstrated weaker associations, suggesting that their support networks may be more consistently integrated into daily life, thereby reducing variability in outcomes.

In light of these findings, Hypothesis 3's assumption that offline support would be more protective than online support is not borne out. Instead, the results suggest that both forms of support may function less as protective

buffers and more as reactive resources mobilized in times of distress. This underscores the importance of examining not only the presence of support but also its **quality, timing, and cultural context**. Future research should employ longitudinal designs and moderation analyses to determine whether the effectiveness of support depends on factors such as perceived authenticity, reciprocity, or the match between support type and stressor.

From a practical perspective, these findings suggest that interventions should not assume that offline support is inherently superior to online support. Instead, universities should focus on enhancing the *effectiveness* of both forms of support by fostering emotionally validating, autonomy-enhancing interactions. Structured peer mentoring, counselor-led group sessions, and digital platforms integrated with professional guidance may help ensure that both online and offline support function as genuine protective resources rather than reactive coping mechanisms.

Hypothesis 4 proposed that gender would moderate the relationship between offline perceived social support and student burnout, such that the buffering effect of offline support would be stronger for women than for men. This expectation was grounded in prior research suggesting that women are more likely to seek, provide, and benefit from emotionally expressive forms of support, whereas men are less likely to rely on interpersonal coping strategies (Taylor et al., 2000). Consequently, it was anticipated that offline support would serve as a stronger protective factor against burnout for female students.

The results, however, did not support this hypothesis. For female students, the correlation between offline perceived social support and burnout was positive but nonsignificant ($r = .23$, $p = .057$; see Table 12). This suggests that higher levels of offline support were weakly associated with higher, rather than lower, burnout symptoms, though the relationship did not reach statistical significance. For male students, the relationship was both stronger and statistically significant ($r = .43$, $p < .001$; see Table 13), indicating that higher offline support was reliably associated with higher burnout. Thus, contrary to the hypothesis, offline support did not buffer against burnout for either gender, and the positive association was actually stronger for men than for women.

Graph 3 further contextualizes these findings by illustrating the distribution of offline support and burnout scores across gender. Male students reported slightly higher medians for offline support compared to females, but also displayed greater variability and outliers. Importantly, their burnout scores were also higher and more dispersed, suggesting that offline support may be mobilized more intensively in contexts of elevated strain. Female students, by contrast, showed narrower distributions for both offline support and burnout, with fewer extreme cases. This pattern suggests that while women may integrate offline support more consistently into their daily coping repertoire, men may turn to offline support primarily when burnout is already pronounced, which could explain the stronger positive correlation observed.

These results challenge the assumption embedded in Hypothesis 4 that offline support would be more protective for women. Instead, they highlight the **complex and potentially ambivalent role of offline support**. One explanation is that students experiencing higher burnout actively seek offline support, producing a positive correlation due to reverse causality. This interpretation is consistent with the job demands–resources (JD-R) model, which emphasizes that individuals under strain mobilize available resources, including social support, as a coping mechanism (Schaufeli & Bakker, 2004). In this sense, offline support may be a *response* to burnout rather than a buffer against it.

Another explanation concerns the **quality and context of offline support**. Offline support may not always be protective; it can also impose obligations, expectations, or interpersonal strain. Thoits (2011) argues that social ties can be both beneficial and burdensome, depending on their quality and the cultural context in which they are embedded. In collectivist societies, such as Pakistan, offline support from family and peers may sometimes involve strong expectations for conformity and achievement, which could inadvertently exacerbate stress rather than alleviate it (Kim et al., 2008). For male students, who may experience additional pressures

to meet social and familial expectations, offline support may be perceived less as a resource and more as a source of evaluative scrutiny, thereby intensifying burnout.

The weaker, nonsignificant association among female students may reflect gendered coping styles. Women are more likely to engage in emotionally expressive coping and to maintain supportive networks as part of their everyday lives (Matud, 2004). As a result, offline support may be more consistently integrated into their coping repertoire, reducing variability in its relationship with burnout. For men, by contrast, offline support may be sought primarily in times of acute stress, which could explain the stronger positive correlation.

Taken together, these findings indicate that Hypothesis 4 was not supported. Gender did moderate the offline support–burnout relationship, but in the opposite direction to what was predicted: the association was stronger for men than for women, and it was not protective in either case. These results underscore the importance of moving beyond simplistic assumptions about the uniformly beneficial effects of social support. Instead, they highlight the need to examine the **conditions under which support is protective versus burdensome**, and how these conditions may differ by gender and cultural context.

From a practical standpoint, these findings suggest that interventions aimed at reducing burnout should not assume that offline support is inherently protective, particularly for male students. Instead, efforts should focus on enhancing the *quality* of offline support, ensuring that it is autonomy-enhancing, emotionally validating, and responsive to individual needs. For female students, interventions may focus on strengthening the effectiveness of existing support networks, while for male students, programs may need to address cultural and gendered barriers to seeking and benefiting from support.

Hypothesis 5 proposed that gender would moderate the relationship between online perceived social support and student burnout, with men showing an equal or slightly stronger buffering effect than women. This prediction was grounded in the assumption that men, who are often less likely to seek offline emotional support, might derive relatively greater benefit from online support networks, where anonymity and accessibility reduce barriers to disclosure (Baker & Algorta, 2016). In contrast, women, who typically maintain more emotionally expressive offline networks, were expected to show a weaker reliance on online support for buffering against burnout (Taylor et al., 2000).

The results, however, did not support this hypothesis. For female students, online perceived social support was significantly and positively correlated with burnout ($r = .26$, $p = .031$; see Table 12). This indicates that higher levels of online support were associated with higher, rather than lower, burnout symptoms. For male students, the relationship was even stronger, with a significant positive correlation ($r = .44$, $p < .001$; see Table 13). Thus, instead of demonstrating a buffering effect, online support was linked to greater burnout for both genders, and the association was stronger for men.

Hypothesis 5 proposed that gender would moderate the relationship between online support and verbal support, with the expectation that female students would show a stronger association. However, the results did not support this prediction. For female students, online perceived support was not significantly related to verbal support, suggesting that online interactions may function as a substitute rather than a complement to face-to-face communication. In contrast, for male students, online support was positively associated with verbal support, indicating that men may use online platforms to extend and reinforce their existing offline networks. Graph 3 further contextualized these findings by showing that males reporting high online support also reported high verbal support, whereas females reporting high online support tended to report lower verbal support. This pattern suggests that online support may serve different psychosocial functions across genders: for males, it appears to supplement verbal support, while for females, it may act as a replacement when offline support is less accessible. These results highlight the complexity of support-seeking behaviors and suggest that gendered differences in coping strategies and communication styles may shape how online and offline support interact. They also raise the possibility of reverse causality, where students experiencing higher burnout may turn to online support, which could explain the lack of a buffering effect in some cases.

Graph 3 provides additional context for these findings. Male students reported slightly higher medians for online support compared to females, but also displayed greater variability and outliers. Importantly, their burnout scores were also higher and more dispersed, suggesting that online support may be mobilized more intensively in contexts of elevated strain. Female students, by contrast, showed narrower distributions for both online support and burnout, with fewer extreme cases. This pattern suggests that while women may integrate online support more consistently into their coping repertoire, men may turn to online support primarily when burnout is already pronounced, which could explain the stronger positive correlation observed.

These results challenge the assumption embedded in Hypothesis 5 that online support would serve as a protective factor, particularly for men. Instead, they highlight the possibility of **reverse causality**, whereby students experiencing higher burnout actively seek online support. This interpretation is consistent with the job demands–resources (JD-R) model, which emphasizes that individuals under strain mobilize available resources, including social support, as a coping mechanism (Schaufeli & Bakker, 2004). In this sense, online support may be a *response* to burnout rather than a buffer against it.

Another explanation concerns the **quality of online support**. While online platforms provide broad access to social networks, the support exchanged may be superficial, inconsistent, or mismatched to the individual's needs. Research has shown that perceived support is beneficial only when it is congruent with the stressor and delivered in a way that is emotionally validating (Lakey & Orehek, 2011). In contrast, obligatory or inadequate support can exacerbate stress, leading to the paradoxical finding that higher reported support coincides with higher burnout. This is consistent with studies demonstrating that heavy reliance on online social interactions can sometimes intensify feelings of isolation, comparison, and emotional exhaustion (Primack et al., 2017).

The stronger positive association among male students may also reflect gendered coping styles. Men are less likely to engage in emotionally expressive coping offline and may perceive online platforms as safer spaces for disclosure. However, if the support they receive online is superficial or invalidating, it may fail to reduce burnout and may even reinforce maladaptive coping patterns (Matud, 2004). In contrast, women may rely more consistently on offline networks, which could explain why the online support–burnout link was weaker for them.

Taken together, these findings indicate that Hypothesis 5 was not supported. Gender did moderate the online support–burnout relationship, but in the opposite direction to what was predicted: the association was stronger for men than for women, and it was not protective in either case. These results underscore the importance of moving beyond simplistic assumptions about the uniformly beneficial effects of online support. Instead, they highlight the need to examine the **conditions under which online support is protective versus burdensome**, and how these conditions may differ by gender and cultural context.

From a practical standpoint, these findings suggest that interventions aimed at reducing burnout should not assume that online support is inherently protective, particularly for male students. Instead, efforts should focus on enhancing the *quality* of online support, ensuring that it is emotionally validating, autonomy-enhancing, and responsive to individual needs. For female students, interventions may focus on integrating online support with existing offline networks, while for male students, programs may need to address cultural and gendered barriers to seeking and benefiting from support.

Conclusion

The study set out to test whether perceived online and offline social support buffer student burnout, and whether these effects differ by gender. Across analyses, the hypothesized protective associations were not observed. Instead, higher perceived support—both online and offline—was positively associated with burnout. Among female students, online support correlated significantly with burnout ($r = .26$, $p = .031$), while offline support showed a positive but nonsignificant trend ($r = .23$, $p = .057$). Among male students, both online ($r = .44$, $p < .001$) and offline ($r = .43$, $p < .001$) support were positively and significantly related to burnout. Graphical diagnostics (boxplots) reinforced these findings: males exhibited slightly higher medians for both support modalities and burnout, alongside greater variability and outliers, suggesting intensified

support mobilization under elevated strain. The Normal P–P plot of standardized residuals indicated approximate normality, supporting the validity of parametric inference for models of student burnout. Collectively, results suggest that perceived support in this sample functioned less as a buffer and more as a correlate of distress—consistent with reverse causality or the ambivalent nature of support when mismatched to needs or embedded within obligation-laden networks (Schaufeli & Bakker, 2004; Thoits, 2011).

These patterns complicate the stress-buffering hypothesis, which posits that support mitigates the effects of stress (Cohen & Wills, 1985). The stronger positive associations in men point to gendered pathways: men may seek support reactively during acute strain, and online interactions—while accessible—may provide superficial, nonvalidating connections that do not alleviate exhaustion (Lakey & Orehek, 2011; Primack et al., 2017). In collectivist contexts, offline support can involve expectations and evaluative pressure that inadvertently intensify burnout, especially for men, while women's more continuous integration of support into daily coping may dampen variance without conferring clear protective benefits (Kim et al., 2008; Matud, 2004). Altogether, the data emphasize that the efficacy of support depends on quality, fit, timing, and cultural scripts—not merely quantity or channel.

Practical implications

- **Quality over quantity:** Support should be emotionally validating, autonomy-enhancing, and congruent with the stressor. Programs must cultivate skills for responsive listening and need-matching in peer and family networks (Lakey & Orehek, 2011; Thoits, 2011).
- **Integrated support ecosystems:** Blend online platforms with trained moderation and links to counseling to transform reach into effectiveness (Wright & Bell, 2003).
- **Gender- and culture-sensitive design:** Address evaluative pressures and encourage adaptive help-seeking among men; strengthen effectiveness (not just availability) of existing networks among women (Kim et al., 2008; Taylor et al., 2000).
- **Monitoring high-risk subgroups:** Boxplot-identified outliers signal the need for targeted interventions and triage pathways for severe distress.

Future prospects

Study design and analysis

- **Longitudinal and cross-lagged panel models:** Establish directionality (support → burnout vs. burnout → support) and reciprocal influence over time (Schaufeli & Bakker, 2004).
- **Multivariate modeling:** Use latent-variable SEM to test comparative and combined effects of online and offline support, with gender moderation, and to model indirect pathways (e.g., via coping, emotion regulation).
- **Incremental validity and competing models:** Compare stress-buffering with relational regulation frameworks; test whether support quality (authenticity, reciprocity) explains variance beyond support quantity (Lakey & Orehek, 2011).
- **Measurement rigor:** Ensure measurement invariance across gender; include culturally adapted scales capturing obligation, evaluative scrutiny, and role demands (Kim et al., 2008).
- **Method triangulation:** Employ experience sampling (EMA) to capture timing and context of support-seeking; apply social network analysis to quantify structure, tie strength, and multiplexity.

Intervention and policy

- **Randomized controlled trials:** Evaluate digital peer-support with guided facilitation versus unstructured online groups; assess effects on burnout trajectories and mechanisms (validation, connectedness).
- **Skill-based curricula:** Embed microinterventions in universities (empathic communication, boundary-setting, stressor–support matching) within counseling and orientation programs.

- **Culturally anchored family engagement:** Train families and mentors to provide nonjudgmental, autonomy-supportive aid; reduce obligation-induced strain.
- **Early warning and analytics:** Use distributional signals (variability, outliers) to deploy stepped-care models and resource allocation.

Reporting and transparency

- **Assumption checks and robustness:** Continue graphical diagnostics (P–P plots, residuals), report skew/kurtosis, and conduct sensitivity analyses (robust regression, bootstrapping) to ensure inference credibility (Field, 2018; Tabachnick & Fidell, 2019).
- **Open science practices:** Preregister hypotheses (buffering vs. reactive support), share analysis code and anonymized data where feasible to strengthen reproducibility.

In sum, perceived social support did not buffer burnout in this cohort; instead, higher support coincided with greater strain, particularly in men and in online contexts. Future work should pivot from "more support is better" to "better-matched, higher-quality support at the right time," leveraging longitudinal, culturally sensitive, and mechanism-focused designs to clarify when and how social support truly protects against academic burnout.

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Appendices:

Questionnaire: Effect of Online and Offline Perceived Social Support on Burnout in University Students

Instructions:

Thank you for participating in this study. Your answers are completely anonymous and will be used solely for research purposes. This questionnaire has four parts:

* Section A: Demographics
* Section B: Online Perceived Social Support
* Section C: Offline Perceived Social Support
* Section D: Student Burnout

Please read each item carefully and answer honestly. There are no right or wrong answers.

SECTION A: DEMOGRAPHICS

1. Age: ___
2. Gender: □ Male □ Female □ Other: __
3. Year of study: □ 1st □ 2nd □ 3rd □ 4th □ 5th+
4. Major/Discipline: _____
5. Average daily time on social media (hours): □ none □ <1 □ 1–2 □ 3–4 □ 5+

SECTION B: ONLINE PERCEIVED SOCIAL SUPPORT

Reference

https://www.yorku.ca/rokada/psyctest/socsupp.pdf

S. No.	Questions	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	There is someone online I can turn to when I need help.	1	2	3	4	5	6	7
2	I have online contacts with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3	I receive emotional support from people I connect with online.	1	2	3	4	5	6	7
4	I have online connections who truly comfort me when I'm upset.	1	2	3	4	5	6	7
5	My online friends really	1	2	3	4	5	6	7

	try to help me.							
6	I can talk about personal problems with people I trust online.	1	2	3	4	5	6	7
7	I have online friends with whom I can celebrate or commiserate.	1	2	3	4	5	6	7
8	There are people online who genuinely care about my feelings.	1	2	3	4	5	6	7
9	People I interact with online help me make important decisions.	1	2	3	4	5	6	7
10	I can count on my online contacts when something goes wrong.	1	2	3	4	5	6	7
11	I feel that my online support system is strong and reliable.	1	2	3	4	5	6	7
12	I feel less lonely because of the support I receive online.	1	2	3	4	5	6	7

SECTION C: OFFLINE PERCEIVED SOCIAL SUPPORT

Reference

https://www.yorku.ca/rokada/psyctest/socsupp.pdf

Family

S. No.	Questions	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	My family really tries to help me.	1	2	3	4	5	6	7
2	I get the emotional help & support I need from my family.	1	2	3	4	5	6	7
3	I can talk about my problems with my family.	1	2	3	4	5	6	7
4	My family is willing to help me make decisions.	1	2	3	4	5	6	7

Friends

S. No.	Questions	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
5	I have friends with whom I can share joys and sorrows.	1	2	3	4	5	6	7
6	I can count on my friends when things go wrong.	1	2	3	4	5	6	7
7	I can talk about my problems with my friends.	1	2	3	4	5	6	7
8	My friends are willing to help me make decisions.	1	2	3	4	5	6	7

Significant Other

S. No.	Questions	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
9	There is a special person who is around when I am in need.	1	2	3	4	5	6	7
	I have a special person	1	2	3	4	5	6	7

10	with whom I can share joys and sorrows.							
11	I can talk about my problems with that person.	1	2	3	4	5	6	7
12	That person is willing to help me make decisions.	1	2	3	4	5	6	7

SECTION D: BURNOUT IN STUDENTS

Reference

https://novopsych.com/wp-content/uploads/2024/07/OLBI-Burnout-Template-Blank-PDF.pdf

S. No.	Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
1	I always find new and interesting aspects in my studies	4	3	2	1
2	There are days when I feel tired before I even start studying.	1	2	3	4
3	It happens more and more often that I talk about my studies in a negative way	1	2	3	4
4	After studying, I tend to need more time than in the past to relax and feel better.	1	2	3	4
5	I can tolerate the pressure of my academic workload very well.	4	3	2	1
6	Lately, I tend to think less at home about my academic tasks and more about other things.	1	2	3	4
7	I feel more and more engaged in my studies	4	3	2	1

8	During my studies, I often feel emotionally drained.	1	2	3	4
9	Sometimes I feel sickened by my academic responsibilities.	1	2	3	4
10	After a day of studying, I often feel worn out and weary.	4	3	2	1
11	This is the only type of academic work I can imagine myself doing	1	2	3	4
12	Usually, I can manage the amount of academic work well.	1	2	3	4
13	I feel a strong sense of belonging to my academic field.	4	3	2	1
14	When I study, I usually feel energized.	4	3	2	1
15	Over time, one can become disconnected from academic work.	4	3	2	1
16	When I study, I feel mentally exhausted	4	3	2	1