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Perceived social support from family and friends and stress among female doctoral students: A relationship analysis

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Abstract

This study examined the relationship between social support from family and friends and perceived stress among female Ph.D. students at G.B. Pant University of Agriculture and Technology. The survey, conducted with 155 participants, assessed perceived social support from family and friends and perceived stress levels using validated scales. Results indicate high levels of social support from both family and friends, with 86% and 85% of respondents reporting high levels of support, respectively. However, a significant proportion of participants also reported moderate to high levels of perceived stress. Correlation analysis revealed a significant, negative correlation between perceived social support from family and perceived stress levels, emphasizing the importance of familial support in stress reduction. In contrast, no significant relationship was found between perceived social support from friends and perceived stress levels. Demographic factors such as age, academic performance, and birth order showed no statistically significant relationships with perceived stress. These findings highlight the need for targeted interventions to address stress management and well-being among female Ph.D. students, with particular emphasis on leveraging familial support networks. Understanding the dynamics of social support and stress in this population is crucial for enhancing their academic success and overall well-being.

Keywords: Social support, perceived stress, support from family, support from friends, mental well-being

Introduction

Social support encompasses the connections individuals have with family, friends, neighbours, and the broader community (Lin *et al.*, 1979) ^[17]. According to The National Cancer Institute's ^[24] Dictionary, these connections serve as a valuable resource, offering emotional encouragement, practical assistance with tasks, and even financial aid during challenging times. Far from being a simple concept, social support is multifaceted (Lourel *et al.*, 2013) ^[18], encompassing both the tangible aid and emotional encouragement received from loved ones and the community (Awang *et al.*, 2014; Zimet *et al.*, 1988) ^[3, 36]. The perception of social support is the belief that help is available from loved ones if needed (Day & Livingstone, 2003) ^[9]. This help can be emotional, offering encouragement and understanding, or instrumental, providing practical assistance with tasks (Treppe & Scharkow, 2016) ^[31].

In contrast, stress refers to a state of mental strain caused by challenging circumstances. All human beings experience stress to varying degrees. Stress is a normal physiological response that motivates a person to confront challenges and threats in life (World Health Organization, 2023) ^[34]. However, the way people manage stress impacts the overall well-being. Agolla & Ongori (2009) ^[1] contended that change is a precursor of stress and defined it as physical and mental response to everyday demands, particularly change.

Educational environments can generate stress for students, ultimately impacting their well-being and academic performance (Jogaratnam & Buchanan, 2004) ^[11]. Bakhsh & Sayed (2015) ^[4] noted that the pursuit of academics inherently involves activities that can be stressful, such as exams, deadlines, challenging coursework etc. Students in higher education encounter a diverse range of stressors, making social support a potentially crucial coping mechanism (Masten *et al.*, 2009) ^[21].

Doctoral programs are rife with stressors that negatively impact student well-being. A study by Leveque *et al.* (2017) ^[16] demonstrated that heavy workload significantly increase the risk of psychological distress. This finding is not surprising given that over one-third of doctoral students' report experiencing symptoms of common mental health disorders. Furthermore, research consistently highlights the detrimental effects of stress on doctoral students. Studies by Moate *et al.* (2019) ^[23] and Rummell (2015) ^[29] link stress to decreased well-being and impaired ability to meet deadlines and complete coursework (Barry *et al.*, 2018) ^[7]. Studies have consistently shown an inverse relationship between social support and stress levels among students (Marhamah & Hamzah, 2016; Scheidler, 2008) ^[19, 30]. Research suggests that perceived social support from family may act as a stronger buffer against stress than support from friends. This is further supported by the finding of a negative correlation between perceived stress and perceived social support from

family, indicating that stronger family support is associated with lower stress levels (Ayman & Antani, 2008) [2].

The effectiveness of social support hinges on its alignment with the most suitable coping strategies for a given stressful situation (Baqutayan, 2011) [5]. For instance, adolescents who rely heavily on friends for support may face challenges in adjusting well, whereas a strong sense of closeness with family has been linked to increased life satisfaction (Nguyen *et al.*, 2016) [25]. Given these findings, encouraging students to utilize social support networks as coping mechanisms appears to be a valuable strategy (Barbayannis *et al.*, 2022) [6]. Researches also indicate that female students report significantly higher levels of psychological distress compared to male students. The role of gender significantly influences how resilience and perceived social support affect psychological distress (Zhang *et al.*, 2018) [35]. Male college students tend to rely on self-control to combat psychological distress, while female students primarily depend on perceived social support to alleviate psychological distress (Martínez-Hernández *et al.*, 2016) [20]. Interestingly, research also suggests that female students might experience both higher social support and higher stress compared to male students (McLean *et al.*, 2022; Kneavel, 2020) [22, 13].

This study primarily aims to understand the relationship between social support from family and friends and the perceived stress levels among female Ph.D. students, a group that is often underrepresented in research despite the significant pressures they face. Understanding the dynamics of social support and stress within this specific demographic group is crucial for developing targeted interventions that can enhance their well-being and academic success. Given the rigorous demands of doctoral programs and the high prevalence of stress-related issues among students, this research seeks to fill a gap in the literature by focusing on the impact of social support on the stress level among female Ph.D. students. By examining this relationship, the study aims to identify how different sources of social support (family and friends) contribute to stress management and overall psychological well-being in this population.

Methodology

This research investigated the relationship between social support from family and friends and the perceived stress levels among female Ph.D. students at G.B. Pant University of Agriculture and Technology (GBPUA&T), located in Pantnagar, Uttarakhand. The methodology employed a quantitative research approach to analyse the relationship between the two variables. The first step in the research methodology involved determining the sample size. A total population of 255 female students were enrolled in Ph.D. programmes offered by various departments of the university, Slovin's formula was applied to calculate the appropriate sample size. The formula,

$$n = N / (1 + Ne^2)$$

where (n) represents the sample size, (N) represents the total population, and (e) represents the margin of error. Hence, the sample size of the present study was 155. This calculation was essential to ensure the reliability and validity of the findings while considering the constraints of time and resources. Convenience sampling was used to select the respondents, whereas the data collection was carried out through a pretested questionnaire. The demographic variables included age, academic performance, relationship status, college, birth order and source of financial support.

A questionnaire was designed to capture two essential aspects: the perceived level of social support from both family and friends and the self-reported levels of stress among the participants. To measure social support, Perceived Social Support Scale (PSSS-FR/FA) by Procidano and Heller (1983) [28] was utilized it consists of 20 statements each for family as well as friends and scored on a 3-point continuum. To measure stress, Perceived Stress Scale (PSS-10) was utilized it is a 5-point scale with the responses ranging from 'never' to 'very often' and consists of 10-items. This scale was originally developed by Cohen *et al.* (1983) [8] and is widely used to assess stress levels in young people and adults (aged 12 and above). For both the scales mentioned above, reverse scoring was applied to the negative statements before calculating the overall scores. To ensure the ethical integrity of the research, all participants were provided with detailed information regarding the purpose and procedures of the study. Informed consent was obtained from each participant before their involvement in the research. Participants were assured that their responses would be kept confidential and used solely for academic purpose. After the completion of data collection, MS Excel was used for data analysis.

Results and Discussion

Demographic characteristics of respondents

The survey results provide a comprehensive demographic profile of female Ph.D. students at G.B. Pant University of Agriculture and Technology as shown in Table 1, shedding light on various aspects of their academic and personal lives. The age distribution was primarily concentrated in the 23-25 and 26-28-year ranges which reflected the typical age range for doctoral studies, aligning with the university's admission trends and academic progression timelines. Out of 155 respondents, a significant majority, (70.32%), achieved a First Division (GPA 7.250 to 8.249) and 42 respondents (27.10%) secured a First Division with distinction (GPA 8.250 and above). Four of the respondents had a Second Division (GPA between 6.5 to 7.249) which can be attributed to the university requirement of a minimum GPA of 7.2 for obtaining a Ph. D. degree. The respondents were distributed across different colleges within the university. The College of Agriculture had the highest representation with 89 respondents (57.42%). As for the relationship status, majority of the respondents (76.13%), reported being single.

Table 1: Demographic profile of the respondents

Demographic Variable	Categories	Frequency	Percentage
Age	23-25	52	33.55%
	26-28	80	51.61%
	29-31	23	14.84%
Academic performance (in terms of GPA)	Second Division (6.5 to 7.249)	04	02.58%
	First Division (7.250 to 8.249)	109	70.32%
	First Division with distinction (8.250 and above)	42	27.10%
College	College of Agriculture	89	57.42%
	College of Basic Sciences and Humanities	48	30.97%
	College of Community Science	12	07.74%
	College of Technology	6	03.87%
Relationship status	Engaged	2	01.29%
	Married	20	12.90%
	Single	118	76.13%
	Relationship	15	09.68%
Birth order	First child	74	47.74%
	Second child	50	32.26%
	Third child	21	13.55%
	Fourth child	9	05.80%
	Fifth child	1	00.65%

Source of Financial support

As for the source of financial support, a significant number of respondents, (45.16%), reported receiving financial support from their parents. Additionally, 28 respondents (18.06%) were supported by both scholarship and their parents, while 25 respondents (16.13%) relied solely on scholarship. Few respondents, (5.16%), received financial support from multiple sources i.e., scholarship, parents, and siblings. Other sources of financial support included spouse (5.81%), parents and siblings (3.23%), scholarship and spouse (1.94%), parents and spouse (1.94%). A very small number of respondents reported getting financial support from other sources like project funded by the Department of Biotechnology (DBT) (0.65%), scholarship along with financial support from parents, siblings, other relatives, and friends (0.65%), scholarships along with parents and spouse (0.65%) and salary from job (0.65%).

Perceived social support from family and friends

The survey results indicated varying levels of perceived social support from family among the female Ph.D. respondents. A substantial majority (86%) reported high level of social support from their family. Medium levels of support were reported by 18 respondents (12%), while a small number, (2%), perceived low levels of social support from their family. Similarly, a large number of respondents (85%) reported high level of social support from. Medium levels of support was reported by 19 respondents (12%), and low levels of support were reported by four respondents (3%). These findings emphasize the high levels of social support from both family and friends experienced by female Ph.D. students at G.B. Pant University of Agriculture and

Technology (Figure 1).

The results differ from Mc Lean *et al.* (2022) ^[22] who found that 32%, 33% and 35% of participants reported low, moderate and high social support respectively. This difference could be because the present study specifically examined female PhD students, while McLean *et al.*'s study used a gender-diverse sample. Gender can influence stress perception and coping mechanisms, with female students potentially seeking social support differently than their male counterparts.

Perceived stress

The study revealed that majority of respondents (65.81%), experienced moderate stress. A smaller group (18.06%) reported high stress levels, while 25 respondents (16.13%) experienced low stress. These findings suggest that while most female Ph.D. students face moderate stress, approximately one in five students also deal with high level of stress, highlighting the pressures and challenges associated with their academic and personal lives. Similar results were obtained by Mclean *et al.* (2022) ^[22].

Relationship between perceived support and stress

The correlation analysis between perceived stress and independent variables like age, academic performance and birth order revealed no statistically significant relationship. Age showed a weak positive correlation ($r = +0.097$, $p = 0.234$), academic performance had a weak negative correlation ($r = -0.105$, $p = 0.191$), and birth order exhibited a very weak negative correlation ($r = -0.025$, $p = 0.721$). All p-values were greater than 0.05, indicating that none of these correlations were significant as shown in Table 2.

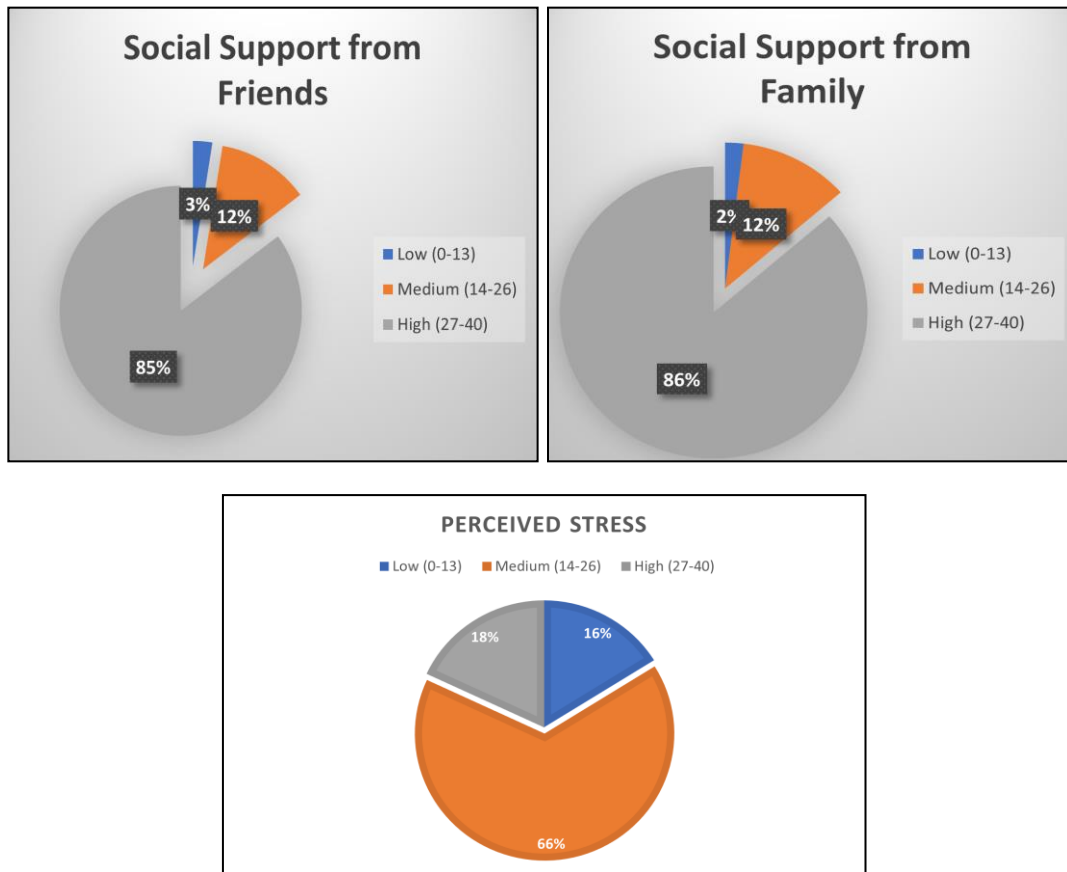


Fig 1: Distribution of respondents on the basis of social support from friends and family and their perceived stress

The results differ from Kneavel (2020) [13], who found significant differences in perceived stress among various age groups. Possible reasons for this discrepancy can be explained by the fact that Kneavel's study used broader age range captured might have more variability in stress levels compared to the relatively homogeneous age group of the present study. It is also possible that female PhD students may experience stressors specific to their academic and professional pursuits, which could overshadow age-related differences. These factors suggest that different personal and situational contexts can lead to varied pathways in how stress is perceived and managed.

The correlation analysis between perceived social support from family and perceived stress revealed a significant, negative correlation between the two variables ($r = -0.194$). This indicates that as family support increases stress experience tends to decrease. The p-value of 0.015, indicates that this correlation is statistically significant. Magnitude of the correlation, along with the statistically significant p-value suggests that the observed relationship is not due to random chance. This finding is in line with Ioannou *et al.* (2019) [10], who discussed that the relationship between social support from family and perceived stress can be affected by multiple interacting factors. One of them could be that PhD students might seek more academic or professional support from advisors, professors etc. which could impact their perception of family support (Lee *et al.*, 2020) [15] and with Wang *et al.* (2020) [33], who mentioned that perceived social support, particularly from family, moderated the relationship between emotional exhaustion and subjective well-being.

The correlation analysis between perceived social support from friends and perceived stress revealed a non-significant relationship. The correlation coefficient ($r = -0.1415$), indicate a weak negative relationship between the two variables. The p-value was 0.078, indicating that the relationship between the two variable is not statistically significant. Hence, there is no strong evidence to conclude that perceived social support from friends is significantly related to perceived stress levels among the respondents. The results align with the findings of Pössel *et al.* (2018) [27], who suggested that varying interpretations of friendship (classmates, same-gender peers, romantic partners) among students might diminish the impact of social support from friends.

Studies by Mclean *et al.*, 2022 [22]; Khatiwada *et al.*, 2021 [14]; Lee *et al.*, 2020 [15]; Poots & Cassidy, 2020 [26]; Jun *et al.*, 2018 [12]; Zhang *et al.*, 2018 [35]; Vungkhanching *et al.*, 2017 [32] also observed negative correlation between levels of social support and perceived stress.

Table 2: Correlation coefficient (r) and p value of the selected independent variables with perceived stress (N=155)

Sl. No	Independent variable	Correlation coefficient	p-value
1.	Age	+0.097	0.234
2.	Academic Performance	-0.105	0.191
3.	Birth order	-0.025	0.721
4.	Social support from family	-0.196	0.015
5.	Social support from friends	-0.143	0.078

Conclusion

The survey results indicate that female Ph.D. students at G.B. Pant University of Agriculture and Technology benefit from strong social support networks, with a majority reporting high levels of support from both family and friends. However, a substantial proportion also experience moderate to high levels of stress. Correlation analysis reveals a significant, albeit weak, negative correlation between perceived social support from family and perceived stress levels, highlighting the importance of familial support in stress reduction. In contrast, no significant relationship was found between perceived social support from friends and perceived stress levels. These findings emphasize the significance of familial support in mitigating stress among female Ph.D. students and emphasize the need for targeted interventions to address stress management within this group.

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