

**ORIGINAL ARTICLE:**

**SEASONAL AFFECTIVE DISORDER AMONG UNDERGRADUATE STUDENTS IN PESHAWAR DISTRICT**

**Izaz Jamal<sup>1</sup>, Aimen Khalil<sup>2</sup>, Tabassum Faiz<sup>3</sup>, Ejaz Gul<sup>4</sup>, Ali Mufti<sup>5</sup>, Muhammad Muneeb Pirzada<sup>6</sup>**

<sup>1,4,6</sup>Department of Psychiatry, Mardan Medical Complex, Mardan, Pakistan

<sup>2,3</sup>Fazaia College of Education for Women, Peshawar, Pakistan

<sup>5</sup>Jinnah Medical College Peshawar, Pakistan

**CORRESPONDENCE: DR. EJAZ GUL E- mail: drgullrh@yahoo.com**

**Submitted: October 20, 2023**

**Accepted: September 28, 2024**

**OBJECTIVE**

The purpose of the current study was to find the impact of seasonal changes on undergraduate students and make a comparison between undergraduate students on the basis of prevalence of Seasonal affective disorder.

**STUDY DESIGN**

Cross sectional study design

**PLACE & DURATION OF STUDY**

Data was collected from different universities of Peshawar city including Khyber medical university, Abasyn University, Peshawar University, Cecos university, and Rehman Medical Institute from 07-January 2022 to 17-November, 2022.

**METHODS**

The sample size consisted of 100 undergraduate students from different universities in Peshawar (N = 100). Their ages ranged from 18 to 26 years old. The Seasonal Pattern Assessment Questionnaire (SPAQ) along with a demographic information sheet and informed consent sheet was administered.

**RESULT**

Statistical analysis revealed that among 100 participants, 71 were affected by SAD. Further on, it was elaborated that female students have high rates of SAD as compared to male students. The present study has a high value of significance (10.928).

**CONCLUSION**

The results of the study supported the proposed hypotheses and confirmed the impact of seasonal affective disorder on the academic performance of undergraduate students while having a large female population.

**KEY WORDS**

Depression, Seasonal Depression, Seasonal Changes, Seasonal Affective Disorder

## INTRODUCTION

Emphasizing the philosophical perspective, Charles Dickens once stated, "Nature bestows upon each season its own unique and unparalleled splendor." Despite this universal truth, some struggle to appreciate the allure of wintertime due to a condition known as Seasonal Affective Disorder. Such individuals, unlike their unaffected counterparts, face heightened adversity during this period. SAD not only interferes with their daily routines and schedules but also leaves a profound impact on their overall well-being<sup>1</sup>. Though it shares resemblances with standard depressive disorders in terms of various symptoms, SAD differentiates itself in the sense that it is not perpetually continuous. Instead, this malady exclusively surfaces during the winter months, subsiding as spring emerges<sup>2</sup>. Consequently, acknowledging and differentiating Seasonal Affective Disorder from general depression becomes essential for accurate assessment and treatment planning.

Major depressive disorder, or simply depression, is a psychological condition that significantly influences one's mood, behavior, and overall well-being. It is marked by ongoing feelings of sadness, emptiness, or despair, a reduction in interest in once-enjoyable activities, and physical symptoms like sleep disruptions, appetite changes, and unexplained aches<sup>3</sup>. Seasonal affective disorder (SAD) is a specific form of depression linked to seasonal changes - typically emerging in the fall and persisting through winter. SAD sufferers may exhibit low energy levels and heightened moodiness during these periods but tend to improve when spring and summer arrive<sup>4</sup>. Seasonal fluctuations in mood can greatly affect an individual's thoughts, emotions, and daily functioning<sup>2</sup>. These mood fluctuations are associated with varying daylight hours, and understanding their significant impact on a person's mental health is crucial. The shifting seasons impact an individual's emotional state, with the "winter blues" often giving way to improved moods in spring as daylight hours increase<sup>5</sup>. Environmental variables like temperature, latitude exposure to natural light sources, and seasonally based fluctuations in neurotransmitter release have all been postulated to influence the development and progression of such behavioral and neuro-vegetative afflictions<sup>6</sup>.

### Rationale

This research aims to investigate the prevalence of Seasonal Affective Disorder (SAD) among undergraduate students. The semester system, which is characterized by its relatively shorter duration compared to an annual academic plan, can exacerbate the challenges faced by students already predisposed to SAD. Consequently, these students may exhibit poorer performance in examinations, quizzes, assignments, and presentations throughout their academic journey.

Academic performance plays a vital role in a student's growth, and sudden changes may disrupt cognitive functions<sup>7</sup>. Seasonal Affective Disorder (SAD) often goes unnoticed but can significantly impact academic performance<sup>8</sup>. In-depth research can help develop strategies to mitigate SAD's negative effects on undergraduate students. This study aims to analyze SAD's impact on men and women in the Peshawar region. Addressing winter-induced sadness and reduced mental engagement is crucial for academic success, as it prevents students from effectively responding and exacerbates their distress. The goal is to raise SAD awareness, improve overall well-being, and enhance psychological comfort.

This research was undertaken to emphasize the significance of Seasonal Affective Disorder and its impact on students' academic achievement. It is crucial to direct the attention of the public and educational committees towards this issue to support affected students and improve their overall well-being.

## **METHODS**

This cross sectional study was conducted from 07-January 2023 to 17-November, 2023. Data was collected from different universities of Peshawar city including Khyber medical university, Abasyn University, Peshawar University, Cecos university, and Rehman Medical Institute. A sample of 100 undergraduate students ranging in age from 18 to 35 years including 50 male and 50 female students were selected using non-probability consecutive sampling technique. The Seasonal Pattern Assessment Questionnaire (SPAQ)<sup>9</sup> by Rosenthal et al. (1984) was administered to assess the impact of seasonal changes on mood and behavior. The SPAQ is most widely used test for screening of seasonal affective disorder and has good reliability and validity.<sup>10</sup> Demographic information sheet was used to collect data regarding student characteristics and written informed consent was taken from the students prior to inclusion in the study. Ethical approval for the research study was obtained from research committee of Fazaia College of education for women Peshawar.

Data analysis was performed using SPSS Version 21.0. Chi-square test was used to find out the comparison between male and female students seasonal affective disorder. The study aimed to assess the impact of seasonal changes on the undergraduate students and find its prevalence and comparison on the basis of gender.

## **RESULTS**

S.A.D. was assessed in both male and female individuals using the Seasonal Pattern Assessment Questionnaire. With a p-value of 10.928, the data confirmed the hypothesis that gender had a considerable effect on the prevalence and severity level of Seasonal Affective Disorder. SAD afflicted 71 of the 100 subjects, including both male and female populations, however, subsequent examination revealed that SAD impacted 43 of the 50 females and 28 of the 50 men. It supports the premise that women are more affected. One of the underlying significant factors is that ladies do not get enough sun exposure, which worsens the illness more than men since they get more exposure, so even if they are affected by SAD, they can get the minimal amount of sunshine they need and their symptoms can be controlled. The findings confirmed the notion that being afflicted by SAD has a detrimental influence on an individual's academic performance.

**The following statistics and frequencies are shared for Gender, Marital status, and Age.**

**Table 1**

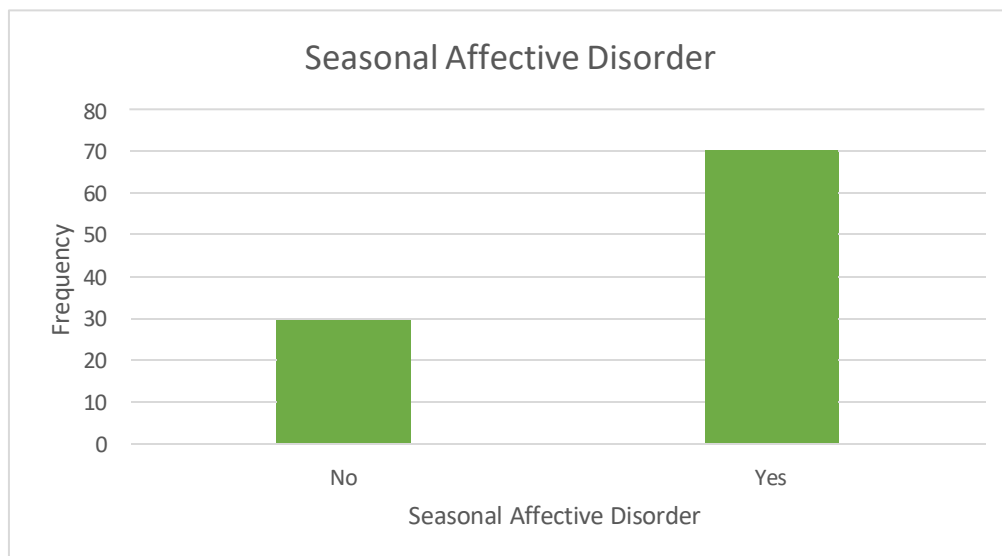
*Demographics Characteristics of Participants*

Table 1 shows the demographic characteristics of study population and presence of SAD among sample population

	<b>Frequency N=100</b>	<b>Percent</b>
Male	50	50
Female	50	50
<b>Marital Status</b>		
Married	05	05
Unmarried	95	95
<b>Age</b>		
18-20 Years	36	36.00
21-23 Years	50	50.00
24-26 Years	13	13.00
30-32 Years	01	01.00
<b>Seasonal Affective Disorder</b>		
Present	71	71
Not Present	29	29

**Figure 1**

*Graphical representation for frequency of participants suffering from S.A.D*



*Note.* Figure 1 shows that among 100 participants 71 students were affected by Seasonal Affective Disorder.

**Table 2**

*Relationship of gender with S.A.D*

Sex	No	Yes	Total
Male	22	28	50
Female	07	43	50
Total	29	71	100

*Note.* Table 2 shows that Female participants are affected more by Seasonal Affective Disorder.

**Table 3**

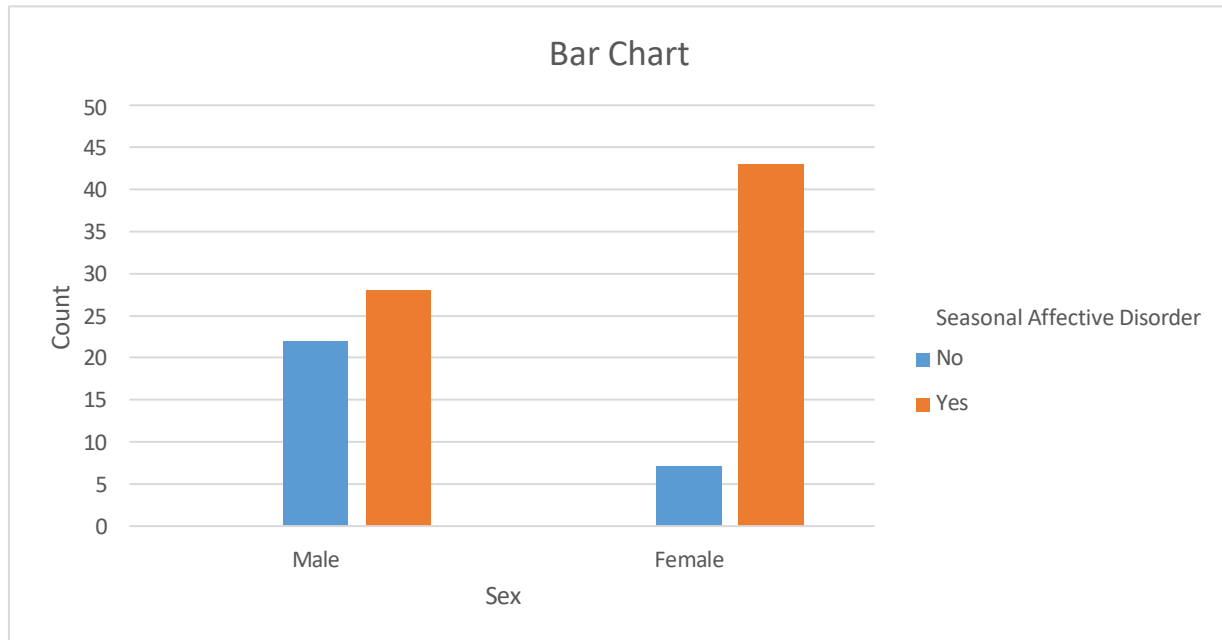
*Shows Responses for replying Yes to experiencing change with the season.*

<b>Sex</b>	<b>Mild</b>	<b>Moderate</b>	<b>Marked</b>	<b>Severe</b>	<b>Total</b>
Male	6	17	3	1	27
Female	5	25	7	4	42
Total	11	42	10	5	69

*Note.* Table 3 shows that participants responded more to moderate change in considering the changes as a problem with seasonal patterns.

**Figure 2**

*Relationship of S.A.D Concerning Gender*



*Note.* Representation of students affected by S.A.D concerning Gender

**Table 4**

*Chi-square Test Result for relationship of gender with S.A.D*

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
<b>Pearson Chi-Square</b>	10.928 <sup>a</sup>	1	.001		
<b>Continuity Correction<sup>b</sup></b>	9.519	1	.002		
<b>Likelihood Ratio</b>	11.341	1	.001		
<b>Fisher's Exact Test</b>				.002	.001

<b>Linear-by-Linear Association</b>	10.818	1	.001
<b>N of Valid Cases</b>	100		

*Note.* Table 4 shows the Test Result for the relationship of gender with S.A.D.

## DISCUSSION

The following research was carried out to determine the prevalence of Seasonal Affective Disorder in undergraduate students.

It is believed that Studies based solely on the SPAQ have revealed prevalence estimates for full-syndrome SAD as high as 10–12% at latitudes 40–65°F,<sup>11</sup> while the mean minimum temperature during winter in Peshawar is 4 °C (39 °F) and the maximum is 18.35 °C (65.03 °F) which elaborates the occurrence of S.A.D in Peshawar.

This study specifically focused on undergraduate-level students, highlighting the escalated challenges of maintaining mental and emotional well-being amidst a demanding higher education setting, especially within semester-based curricular structures. Depressed individuals struggle to manage academic commitments effectively due to their inherent lack of focus and energy stemming from their mental health challenges. Consequently, these affected students fail to perform optimally within the academic realm, accumulating poorer grades that further exacerbate their depressive symptoms.

In this study, results generated that among 100 participants 71 reported being affected by Seasonal Affective Disorder, and among those 71 affected patients 43 were female. Previous studies have also found higher prevalence of SAD among females<sup>12,13</sup>.

A study examining mental health problems of undergraduate students comprising of sample from different universities of Lahore found that 16 % of the students had very severe mental health problems while 31 % had severe mental health problems<sup>14</sup>. Another study examining relationship between seasonality, and psychological distress found significant positive correlation between seasonality and depression, anxiety, stress<sup>15</sup>.

Incidence of psychiatric morbidity including anxiety disorders, depressive disorders, and Bipolar disorders are also reported among those suffering from SAD<sup>16</sup>. Higher prevalence rates of SAD have been reported by a study conducted to assess psychiatric morbidity in patients suffering from seasonal affective disorder. The study found that 41.7 % of the students suffered from SAD. Among those suffering from SAD, more than one third had psychiatric morbidity<sup>4</sup>.

According to our study females suffer more from Seasonal Affective Disorder. A recent epidemiological study conducted to find out the prevalence of winter depression in Pakistan found that women and girls had more winter depression as compared to males. The study found winter depression and winter blues to be present among 26 % of the study population<sup>13</sup>.

Among the different symptoms mood and eating habits were affected more in females while in male students social putting factor was disturbed on a large ratio. All of the participants felt a moderate change in sleep cycle disturbance with the seasonal change but mostly barely noticed the change. Weight and Energy levels are the least noticeable factors while mood and appetite most noticeable ones and among male patients socializing factors are also most noticeable.

Hyperphagia is strongly associated with SAD<sup>17, 18</sup>. A systematic review exploring the association between SAD, diet and eating behaviors also found that participants with SAD had more cravings



for high fiber and starch rich foods as compared to healthy controls. According to the same study SAD patients were found to be consuming significantly large amount of meals and more evening snacking. They exhibited higher prevalence of binge eating<sup>19</sup>.

These statistics show that students are badly affected by Seasonal Affective Disorder and if their physical health is disturbed such as sleep, appetite, and energy level it impacts their mental functioning as well negatively. All these combined affect their academic performances which act as a secondary stressor in depression. The affected students are getting, more prone to severe depression as they are having stressors in all basic domains such as Physical, Social, and Psychological which work in an interlinked connection affecting their academic performances.

## **CONCLUSION**

The results of the research corroborate the hypothesis that Seasonal Affective Disorder predominantly affects women, as the data obtained exhibited statistical significance. It is conjectured that females experience a higher prevalence of SAD on a global scale. Males are also affected but gender plays its role in a domain that males have more outings and exposure to sunlight which balances the melatonin and Vitamin-D levels so, in case they are getting on the borderline of Seasonal Affective Depression they are saved on the sight of these hormones balanced secretions while in females they have less exposure, especially in this region so they have less production of the melatonin and Vitamin-D which acts as leading factor in causing SAD.

## **Recommendations**

Seasonal Affective Disorder is a complex disorder that needs attention along with awareness. S.A.D is mostly neglected because of its rare presence in this climate area. It is recommended that researchers study the S.A.D and its impact in different regions of Pakistan with a large sample size. They should also use a life quality scale to identify the extent to which it impacts the lives of different age groups. Medical field experts should study to know the exact underlying causes behind it and also develop effective treatments. There is a need to understand the situation and help to build some student-friendly system to support the students affected by S.A.D. The faculty and management should give some leverage to students affected by S.A.D., as this would prevent them from getting more depressed.

## **Funding**

This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

## **Declaration of Interest**

**None**

## REFERENCES

1. Partonen T, Lönqvist J. Seasonal affective disorder. *The Lancet*. 1998 Oct 24;352(9137):1369-74. DOI: [10.1016/S0140-6736\(98\)01015-0](https://doi.org/10.1016/S0140-6736(98)01015-0)
2. Magnusson A, Boivin D. Seasonal affective disorder: an overview. *Chronobiology international*. 2003 Jan 1;20(2):189-207. <https://doi.org/10.1081/CBI-120019310>
3. Otte C, Gold SM, Penninx BW, Pariante CM, Etkin A, Fava M, Mohr DC, Schatzberg AF. Major depressive disorder. *Nature reviews Disease primers*. 2016 Sep 15;2(1):1-20. <https://doi.org/10.1038/nrdp.2016.65>
4. Fonte A, Coutinho B. Seasonal sensitivity and psychiatric morbidity: study about seasonal affective disorder. *BMC psychiatry*. 2021 Jun 29;21(1):317. <https://doi.org/10.1186/s12888-021-03313-z>
5. Kurlansik SL, Ibay AD. Seasonal affective disorder. *American family physician*. 2012 Dec 1;86(11):1037-41.
6. Attar-Levy D. Seasonal depression. *Therapie*. 1998;53(5):489-98.
7. McBride EE, Greeson JM. Mindfulness, cognitive functioning, and academic achievement in college students: the mediating role of stress. *Current Psychology*. 2023 May;42(13):10924-34. <https://doi.org/10.1007/s12144-021-02340-z>
8. Seto B, Kodama K, Griffin D, Seto J, Obana K, Taira D. Effect of hometown seasonality on undergraduate students' risk of developing seasonal affective disorder. *Hawai'i Journal of Health & Social Welfare*. 2021 Dec;80(12):298. PMID: 34877542; PMCID: PMC8646863
9. Rosenthal NE, Sack DA, Gillin JC, Lewy AJ, Goodwin FK, Davenport Y, Mueller PS, Newsome DA, Wehr TA. Seasonal affective disorder: a description of the syndrome and preliminary findings with light therapy. *Archives of general psychiatry*. 1984 Jan 1;41(1):72-80. doi:10.1001/archpsyc.1984.01790120076010
10. Mersch PP, Vastenburger NC, Meesters Y, Bouhuys AL, Beersma DG, van den Hoofdakker RH, den Boer JA. The reliability and validity of the Seasonal Pattern Assessment Questionnaire: a comparison between patient groups. *Journal of affective disorders*. 2004 Jun 1;80(2-3):209-19. [https://doi.org/10.1016/S0165-0327\(03\)00114-9](https://doi.org/10.1016/S0165-0327(03)00114-9)
11. Schlaepfer TE, Nemeroff CB. Seasonal affective disorder. *Neurobiology of Psychiatric Disorders*. 2012 Jul 9:279.
12. Brancaleoni G, Nikitenkova E, Grassi L, Hansen V. Seasonal affective disorder and latitude of living. *Epidemiology and Psychiatric Sciences*. 2009 Dec;18(4):336-43. DOI: <https://doi.org/10.1017/S1121189X00000312>
13. Yasmin H, Riaz MN, Nasir F. Epidemiological study on the prevalence of winter depression in Pakistan. *Journal of Development and Social Sciences*. 2022 Jun 30;3(2):655-62. DOI: [https://doi.org/10.47205/jdss.2022\(3-II\)59](https://doi.org/10.47205/jdss.2022(3-II)59)
14. Saleem S, Mahmood Z, Naz M. Mental health problems in university students: A prevalence study. *FWU Journal of Social Sciences*. 2013 Dec 1;7(2):124.
15. Sharif A, Riaz MN. Longitudinal study on seasonal affective disorder: seasonality and seasonal psychiatric symptoms across seasons in Pakistan. *Rawal Med J*. 2020 Apr;45(2):327-30.
16. Winthorst W, Roest A, Bos E, Meesters Y, Penninx B, Nolen W, de Jonge P, Winthorst WH, Roest AM, Bos EH, Meesters Y. Seasonal affective disorder and non-seasonal affective disorders. *Light upon seasonality*. 2020:55.

17. Konttinen H, Van Strien T, Männistö S, Jousilahti P, Haukkala A. Depression, emotional eating and long-term weight changes: a population-based prospective study. *International Journal of Behavioral Nutrition and Physical Activity*. 2019 Dec;16(1):1-1. <https://doi.org/10.1186/s12966-019-0791-8>
18. Riccobono G, Iannitelli A, Pompili A, Iorio C, Stratta P, Rossi R, Bersani G, Pacitti F. Night Eating Syndrome, circadian rhythms and seasonality. A study in a population of Italian university students. *Rivista di psichiatria*. 2020;55(1):47-52. <https://hdl.handle.net/11573/1375789>
19. Yang Y, Zhang S, Zhang X, Xu Y, Cheng J, Yang X. The role of diet, eating behavior, and nutrition intervention in seasonal affective disorder: A systematic review. *Frontiers in Psychology*. 2020 Aug 4;11:1451. <https://doi.org/10.3389/fpsyg.2020.01451>

#### **AUTHOR(S) CONTRIBUTION**

