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Comprehensive Assessment of lifestyle variables in Polycystic Ovary Syndrome risk: Sleep disruptions, Nutritional intake, and Sedentary activity in Female students

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KEYWORDS

Polycystic Ovary Syndrome, Comparative Study, Sleep Patterns, Dietary Habits, Sedentary Behaviour

ABSTRACT:

Objective: Polycystic Ovary Syndrome (PCOS) is a prevalent endocrine disorder influenced by lifestyle factors such as sleep patterns, diet, physical activity, and psychological health. This study aimed to compare the prevalence and associated risk factors of PCOS between paramedical and non-paramedical female students.

Materials and Methods: A cross-sectional comparative study was conducted among 514 female students from paramedical and non-paramedical backgrounds. Validated scales, including PSQI (sleep quality), FFQ (food frequency), DSQ (dietary sugar intake), IPAQ (physical activity), and DASS-21 (psychological health), were used to assess lifestyle factors.

Results: PCOS prevalence was higher among non-paramedical students (21.01%) compared to paramedical students (13.22%). Non-paramedical students exhibited poorer sleep quality, with 8.94% sleeping less than 4 hours compared to 1.94% of paramedical students. Unhealthy dietary habits were more common, as 7.39% of non-paramedical students reported regular fast-food consumption compared to 1.55% of paramedical students. Sedentary behavior was significantly higher, with 52.91% of non-paramedical students engaging in little or no exercise versus 35.01% of paramedical students. Stress levels were also elevated in non-paramedical students (13.22%) compared to paramedical students (6.61%).

Conclusion: The study highlights the significant influence of lifestyle factors on PCOS prevalence, emphasizing the benefits of health awareness in reducing risk. Paramedical students, likely due to their education in health sciences, exhibited better preventive behavior. Implementing structured awareness programs and lifestyle interventions targeting non-paramedical students could aid in early diagnosis, prevention, and management of PCOS.

1. Introduction

Polycystic Ovary Syndrome (PCOS) is the most prevalent endocrine disorder among women of reproductive age, affecting 8–13% of the global female population, with up to 70% of cases remaining undiagnosed (1). Characterized by menstrual irregularities, hyperandrogenism, and polycystic ovarian

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morphology, PCOS is associated with hormonal imbalances, metabolic dysfunction, and reproductive complications (2) (3). The disorder manifests through a complex interplay of genetic predisposition and environmental factors, including lifestyle behaviors such as dietary habits, physical activity, sleep patterns, and psychological well-being(4). Studies indicate that sedentary behavior, unhealthy eating habits, and chronic stress exacerbate PCOS symptoms by contributing to insulin resistance, metabolic disturbances, and endocrine dysfunction, creating a cyclical pattern that worsens health outcomes (5) (6). Young women, particularly those in academically demanding environments, such as medical and paramedical students, experience unique stressors that may heighten their risk of developing or worsening PCOS symptoms (7). Studies indicate that academic stress, irregular sleep schedules, and poor dietary habits significantly impact hormonal regulation, insulin sensitivity, and menstrual health. Furthermore, psychological distress, including anxiety and depression, is more prevalent among women with PCOS, potentially acting as a mediator between lifestyle disruptions and disease progression (8).

PCOS is widely recognized as a hyperandrogenic disorder characterized by oligo/anovulation and metabolic dysregulation. The pathophysiology is multifactorial, with functional ovarian hyperandrogenism (FOH) playing a dominant role in nearly two-thirds of PCOS cases (2) (9). Several modifiable risk factors contribute to PCOS progression. Obesity and weight gain have a bidirectional relationship with PCOS, with each one-point increase in BMI raising the risk of PCOS by 9% (6). Dietary imbalances, high sugar consumption, and sedentary lifestyles further exacerbate insulin resistance, hyper insulinemia, and dyslipidaemia, increasing susceptibility to Type 2 diabetes, cardiovascular disease, and metabolic syndrome (10). Additionally, poor sleep quality and insufficient sleep duration are strongly associated with hormonal dysregulation, increased inflammation, and reproductive dysfunction, all of which contribute to worsening PCOS symptoms and overall health decline (11) (12) .

Recent evidence highlights the critical role of lifestyle modifications in managing PCOS and mitigating its complications. Regular physical activity balanced dietary intake, and improved sleep hygiene are essential strategies for reducing metabolic and hormonal imbalances associated with PCOS (5) Sleep disturbances, in particular, impact the hypothalamic-pituitary-gonadal (HPG) axis, which governs reproductive hormone regulation. Chronic sleep deprivation disrupts daily rhythmicity, leading to dysregulation of reproductive hormones and impaired fertility outcomes (13) (14). Given that sleep disorders uniquely affect women at different life stages—from menstruation to pregnancy and menopause—their role in reproductive health is a growing area of concern. Women with PCOS often suffer from symptoms that impact their academic performance, social life, and psychological well-being. In student populations, particularly those pursuing medical education, the combined effects of high academic pressure, poor dietary habits, and inadequate sleep may worsen PCOS severity. Sedentary behaviour, commonly seen in students with long study hours, is closely linked to obesity, insulin resistance, and dyslipidaemia, reinforcing the metabolic complications of PCOS (5). The bi-directional relationship between weight gain and PCOS suggests that students with PCOS are at higher risk of experiencing greater weight fluctuations, further exacerbating their symptoms. The presence of anxiety, depression, and perceived stress in PCOS patients has also been well-documented, highlighting the need for a holistic approach to management.

This study is a comparative cross-sectional study conducted among paramedical and non-paramedical female students to assess the prevalence of PCOS and analyze how dietary habits, sugar consumption, sedentary lifestyle, and sleep patterns interact with PCOS risk. A survey-based approach was used to collect data from college students in Tamil Nadu, India, employing validated questionnaires to evaluate the impact of lifestyle behaviours on PCOS development and severity. A systematic literature review was also performed using electronic databases such as PubMed, Scopus, and Google Scholar, focusing on PCOS-related studies published between 2021 and 2024. This research underscores the need for early interventions targeting modifiable risk factors to improve reproductive and metabolic health outcomes by exploring the connections between PCOS and lifestyle factors. Addressing dietary imbalances, sedentary habits, and sleep disturbances could offer effective preventive and management

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strategies for PCOS, particularly in young women experiencing academic stress. This study highlights the importance of lifestyle interventions in reducing the prevalence and severity of PCOS and emphasizes the need for awareness programs to educate students on healthy lifestyle modifications. Understanding the relationship between PCOS and lifestyle variables can provide new insights into preventive and therapeutic approaches, ultimately improving the quality of life for women affected by this condition.

2. Material and Methods

A prospective cross-sectional observational study was conducted among female students from various educational institutions to assess the prevalence of PCOS and its correlation with lifestyle factors, including sleep patterns, dietary habits, sugar consumption, sedentary behaviour, and psychological health. The study was comparative, analyzing paramedical and non-paramedical students to determine differences in PCOS prevalence and associated risk factors. The research was conducted over six months, encompassing data collection, analysis, and interpretation. A minimum of 500 participants was determined to ensure statistical significance and comprehensive analysis of lifestyle behaviours affecting PCOS. A structured questionnaire incorporating validated scales was designed and developed to assess various lifestyle parameters impacting PCOS. The study was conducted at educational institutions where female students aged 18-30 years were invited to participate. The questionnaire, available in English and Tamil, collected socio-demographic data, self-reported PCOS diagnosis or symptoms, and lifestyle-related factors. The inclusion criteria comprised female students aged 18-30 years, those willing to actively participate and provide informed consent, and those diagnosed with PCOS or exhibiting symptoms suggestive of PCOS. The exclusion criteria included individuals with other endocrine disorders (except PCOS), students on hormonal therapy, those with chronic illnesses impacting lifestyle patterns, and participants unwilling to complete the survey or provide informed consent. The Pittsburgh Sleep Quality Index (PSQI) was used to evaluate sleep quality, the Food Frequency Questionnaire (FFQ) and Dietary Screener Questionnaire (DSQ) assessed dietary habits and sugar intake, the International Physical Activity Questionnaire (IPAQ) (5) measured physical activity levels, and the Depression, Anxiety, and Stress Scale-21 (DASS-21) (8) evaluated psychological health (stress, anxiety, and depression). The study assessed correlations between sleep patterns, diet, sugar intake, sedentary behaviour, and psychological health with PCOS prevalence and severity. Statistical analysis was conducted using Chi-square tests and correlation analysis to examine associations between lifestyle factors and PCOS prevalence. Data analysis and visualizations were performed using Graph Pad Prism and SPSS software, ensuring a detailed assessment of PCOS prevalence and risk factors among students. The findings aimed to provide valuable insights into lifestyle modifications for potential management and prevention strategies of PCOS among young female students, emphasizing the significance of early diagnosis and intervention.

3. Results

TABLE 1: DEMOGRAPHIC INFORMATION

Demographic information (Age Group)	No of Students n=514		Statistics
	Paramedical students (n=257) (%)	Non paramedical students (n=257) (%)	
Below 18	25 (9.72)	19 (7.69)	0.0469
18- 22	197 (76.65)	219 (88.66)	
22-25	32 (12.45)	14 (5.66)	
Above 25	3 (1.16)	5 (2.02)	

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Family History of PCOS (yes) no maybe	8 (3.11)	24 (9.71)	0.0074
	247 (92.60)	214 (88.25)	
	11 (4.280)	11 (6.02)	

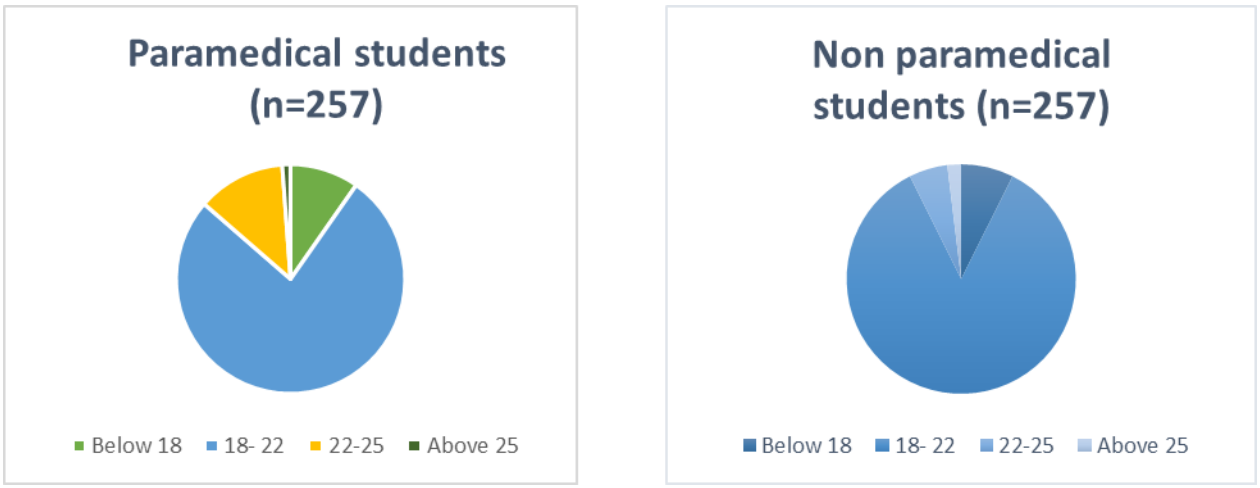

Figure 1: A) Age-wise distribution of participants, B) Family history of PCOS

In our investigation, a significant proportion of participants (514) were female students, equally divided into paramedical (n=257) and non-paramedical (n=257) groups. The majority of participants (76.65% of paramedical and 88.66% of non-paramedical students) fell within the 18–22 years age range (Figure 1). Regarding the family history of PCOS, 9.71% of non-paramedical students reported a family history of PCOS compared to 3.11% of paramedical students, indicating a potential genetic predisposition (Figure 1). This demographic summary highlights age distribution and genetic influences on PCOS prevalence within our study population [Table 1].

TABLE 2: SLEEP PATTERN EXAMINATION

Sleep pattern examination	Criteria	No of Students n=514		Statistics
		Paramedical students (n=257) (%)	Non paramedical students (n=257) (%)	
Average Sleep Duration	More than 8 hours	85 (33.07)	39 (15.17)	**0.008**
	4-5 hours	18 (7.00)	45 (17.509)	
	6-8 hours	150 (58.36)	135 (52.52)	
	Less than 4 hours	4 (1.55)	38 (14.78)	

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Sleep quality	Excellent	30 (11.67)	9 (3.50)	<0.0001
	good	150 (58.36)	90 (35.01)	
	Average	60 (23.34)	100 (38.91)	
	poor	12 (4.66)	35 (13.61)	
	Very Poor	5 (1.94)	23 (8.94)	
Usage of electronic devices during bedtime	Rarely	50 (19.45)	27 (10.50)	<0.0001
	Sometimes	64 (24.90)	54 (21.01)	
	often	41 (15.95)	66 (25.68)	
	always	51 (19.844)	93 (36.18)	
	Never	51 (19.84)	17 (6.61)	

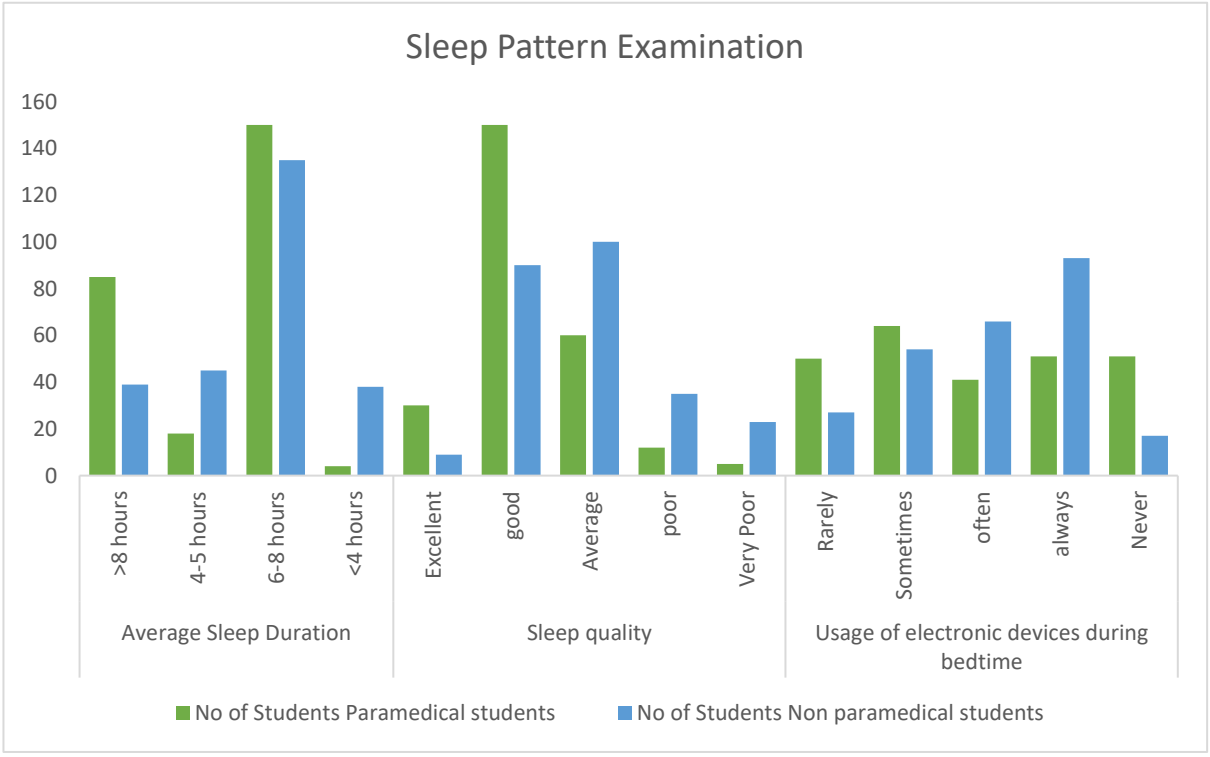

Figure 2: Sleep pattern Assessment among Paramedical and non-paramedical

Sleep analysis revealed notable differences between paramedical and non-paramedical students. A significant proportion (14.78%) of non-paramedical students reported sleeping less than 4 hours, compared to 1.55% of paramedical students ($p = 0.0038$). More than 8 hours of sleep was reported by 33.07% of paramedical students, whereas only 15.17% of non-paramedical students met this criterion. Sleep quality assessment further revealed that poor or very poor sleep quality was notably higher in non-paramedical students (22.55%), compared to only 6.6% of paramedical students ($p < 0.0001$). Additionally, 36.18% of non-paramedical students reported always using electronic devices before bedtime, while only 19.84% of paramedical students

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exhibited this behaviour ($p < 0.0001$) (Figure 2). These findings suggest that sleep deprivation and excessive screen exposure before sleep are more common among non-paramedical students, potentially contributing to hormonal imbalances and PCOS symptoms [Table 2].

TABLE 3: DIETARY HABIT AND NUTRITIONAL INTAKE

Dietary habits examination	Criteria	No of Students n=514		Statistics
		Paramedical students (n=257) (%)	Non paramedical students (n=257) (%)	
Consumption of Refined carbohydrates	Rarely	157 (61.08)	137 (53.90)	0.021
	3-5 times a week	81 (31.51)	82 (31.90)	
	≥3-6 times a week	19 (7.393)	38 (14.78)	
Protein rich foods	Rarely	75 (29.18)	110 (42.80)	0.001
	3-5 times a week	145 (56.42)	128 (42.80)	
	≥3-6 times a week	37 (14.39)	19 (7.39)	
Consumption of sugary foods or beverages	Rarely or never	140 (54.47)	60 (23.34)	<0.001
	1-2 times a week	80 (31.12)	115 (44.74)	
	3-4 times a week	30 (11.67)	55 (21.40)	
	Daily	7 (2.72)	27 (10.50)	
Consumption of fried or processed food	Rarely or never	80 (31.12)	98 (38.13)	0.0001
	1-2 times a week	140 (54.47)	109 (42.41)	
	3-4 times a week	33 (12.84)	31 (12.06)	
	Daily	4 (1.55)	19 (7.39)	
Description Of dietary habits	Balanced	132 (51.36)	113 (43.96)	<0.0001
	Mostly carbohydrate-Heavy	117 (45.52)	106 (43.96)	
	High in processed and fast foods	8 (3.11)	38 (14.78)	

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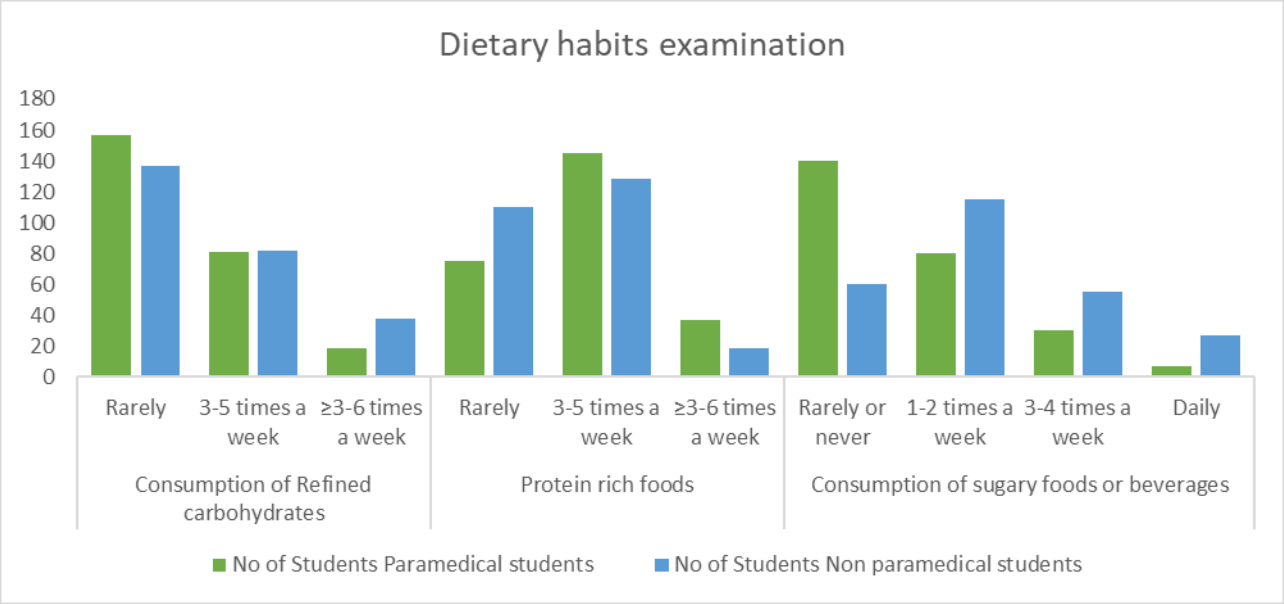
Fruits and vegetables in diet	yes	173 (67.31)	135 (52.52)	0.014
	no	84 (32.68)	122 (47.47)	



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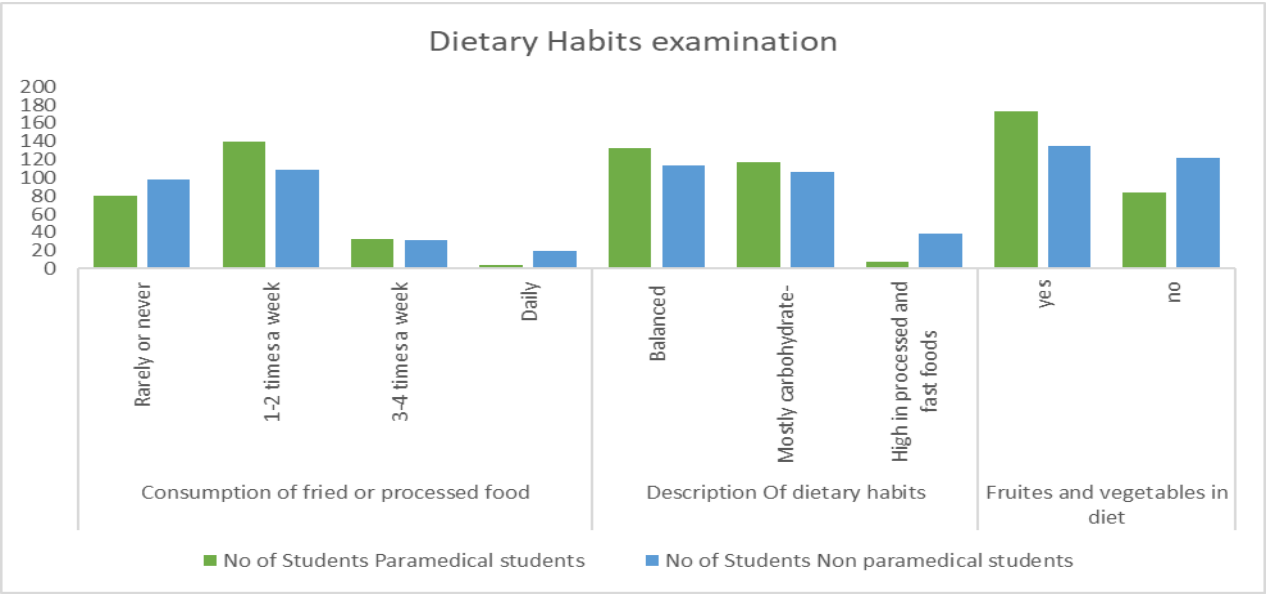

B

Figure 3: A &B represents Dietary habit examination among Paramedical and non-paramedical

Dietary analysis demonstrated significant differences in food consumption patterns between paramedical and non-paramedical students. Daily consumption of sugary foods and beverages was substantially higher among

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non-paramedical students (10.50%), compared to 2.72% of paramedical students ($p < 0.001$). Additionally, fruit and vegetable intake was lower among non-paramedical students (52.52%) than in paramedical students (67.31%) ($p = 0.014$). Protein-rich food consumption was lower among non-paramedical students, with 42.80% rarely consuming protein-based meals, compared to 29.18% of paramedical students ($p = 0.001$). Furthermore, non-paramedical students exhibited a greater preference for processed and fast foods (14.78%), whereas only 3.11% of paramedical students followed a similar pattern ($p < 0.0001$) (Figure 3). These findings suggest that non-paramedical students have a higher intake of unhealthy foods and lower consumption of essential nutrients, which could exacerbate PCOS symptoms and metabolic disturbances [Table 3].

TABLE 4: SEDENTARY BEHAVIOUR EXAMINATION

Sedentary behaviour examination	Criteria	No of Students		Statistics
		Paramedical students (n=257) (%)	Non paramedical students (n=257) (%)	
Hours do you spend sitting or lying down (excluding sleep) in a day	More than 8 hours	47 (18.28)	58 (22.56)	0.006
	6-8 hours	50 (19.45)	77 (29.96)	
	4-6 hours	90 (35.01)	73 (28.40)	
	Less than 4 hours	70 (27.23)	49 (19.06)	
Engagement in physical activity (e.g., walking, exercise, sports)	Daily	51 (19.84)	20 (7.78)	<0.001
	3-5 times a week	40 (15.56)	32 (12.45)	
	1-2 times a week	76 (29.57)	69 (26.84)	
	Rarely or never	90 (35.01)	136 (52.91)	
Physical activity performed	Intense (e.g., gym workouts, sports)	11 (4.28)	7 (2.72)	0.001
	Moderate (e.g., jogging, cycling)	30 (11.67)	29 (11.28)	
	Light (e.g., walking, yoga)	138 (53.69)	101 (39.29)	
	None	78 (30.35)	120 (46.69)	
Impact of academic workload in physical activity	Yes	128 (49.80)	167 (64.98)	0.001
	No	129 (50.19)	90 (35.01)	

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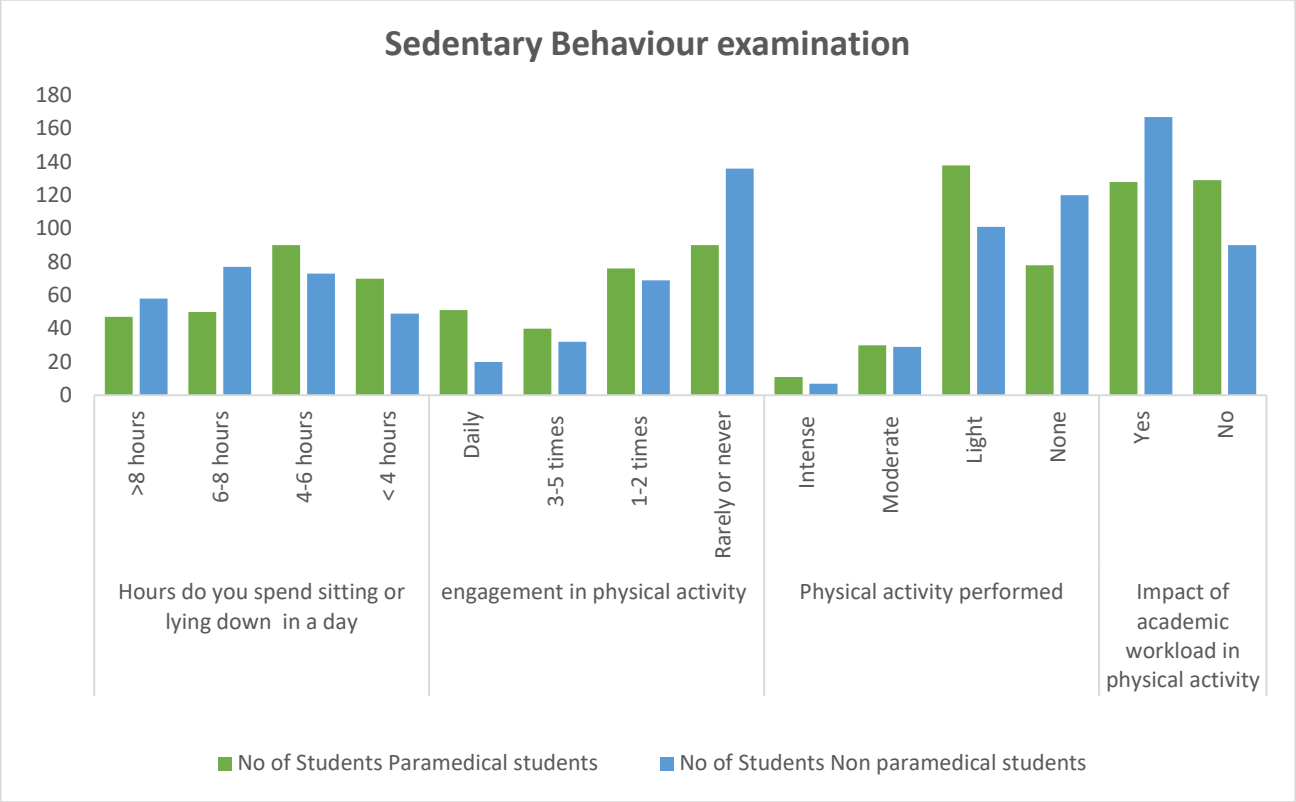

(Figure 4) Sedentary Behaviour examination

higher proportion of non-paramedical students engaged in sedentary behavior, with 22.56% spending more than 8 hours sitting daily, compared to 18.28% of paramedical students (p = 0.006). Conversely, daily physical activity was significantly lower in non-paramedical students (7.78%) compared to paramedical students (19.84%) (P < 0.001). Additionally, 64.98% of non-paramedical students reported that academic workload negatively impacted their physical activity, compared to 49.80% of paramedical students (p = 0.001). A significant 52.91% of non-paramedical students reported rarely or never engaging in physical activity, compared to 35.01% of paramedical students (Figure 4). These findings indicate that a sedentary lifestyle is more prevalent among non-paramedical students, potentially contributing to obesity, insulin resistance, and increased PCOS severity [Table 4].

TABLE 5: PSYCHOLOGICAL FACTORS AND STRESS LEVELS

Psychological factor examination	**Criteria**	**No of Students n=514**		**Statistics**
		Paramedical students (n=257) (%)	**Non paramedical students (n=257) (%)**	
Feeling of stressed or anxious	Rarely	29 (11.28)	47 (18.28)	<0.001
	Sometimes	166 (64.59)	152 (59.14)	
	often	45 (17.50)	24 (9.33)	
	always	17 (6.61)	34 (13.22)	

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Influence of stress level in eating or physical activity	*yes	122 (47.47)	114 (44.32)	0.536
	No	135 (52.52)	143 (55.64)	

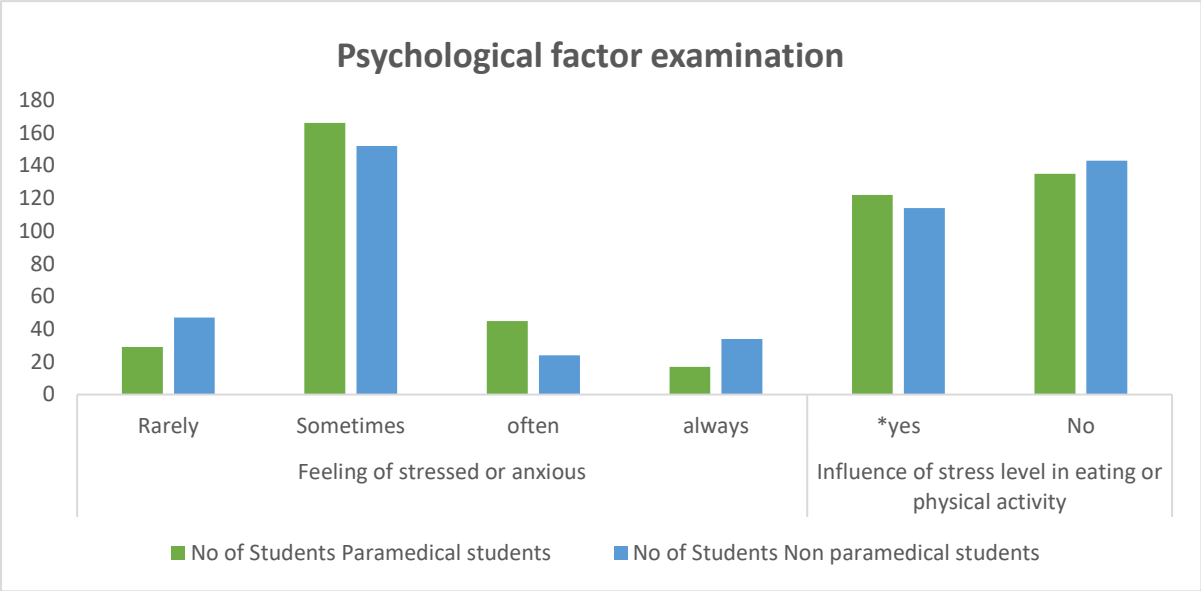

Figure 5: Psychological factor examination

Psychological analysis revealed that stress levels were significantly higher among non-paramedical students. A notable proportion (13.22%) of non-paramedical students reported always feeling stressed, compared to 6.61% of paramedical students ($p < 0.001$). Additionally, 9.33% of non-paramedical students reported frequently feeling anxious, whereas only 6.22% of paramedical students exhibited similar symptoms. Although stress-related changes in eating habits and physical activity did not show statistical significance ($p = 0.536$), the overall findings suggest that stress is a more prominent factor in non-paramedical students, potentially exacerbating hormonal imbalances and worsening PCOS symptoms (Figure 5) [Table 5].

Table 6: PCOS Symptoms and menstrual irregularities

PCOS symptoms examination	**Criteria**	**No of Students n=514**		**Statistics**
		Paramedical students (n=257) (%)	**Non paramedical students (n=257) (%)**	
Diagnosed with PCOS by a healthcare professional	*Yes	34 (13.22)	54 (21.01)	0.026
	No	223 (86.77)	203 (78.98)	

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Irregular menstrual cycle		56 (21.78)	48 (18.67)	0.8125
Weight gain		47 (18.28)	51 (19.84)	
Excess facial hair or body hair		25 (9.72)	26 (10.11)	
Acne or oily skin		66 (25.68)	58 (22.56)	
Hair thinning or hair loss		113 (43.96)	112 (43.57)	
None of the above		92 (35.75)	73 (28.40)	
Irregularity of the menstrual cycle	Very regular (28–35 days)	185 (71.98)	160 (62.25)	**<0.001**
	Occasionally irregular	52 (20.23)	35 (13.61)	
	Frequently irregular	16 (6.22)	38 (14.78)	
	Absent for the last 3+ months	4 (1.55)	24 (9.33)	
Duration of the menstrual cycle	1-3 days	122 (47.47)	98 (9.33)	<0.001
	4-7 days	125 (48.63)	122 (47.47)	
	≥ 4 days	10 (3.89)	37 (14.39)	
Any noticeable change in the Menstrual cycle over the past year	Yes	44 (17.12)	67 (26.07)	
	No	213 (82.87)	190 (73.93)	
awareness of the symptoms of PCOS	Yes	175 (68.09)	85 (33.07)	<0.0001
	No	82 (31.90)	172 (66.92)	

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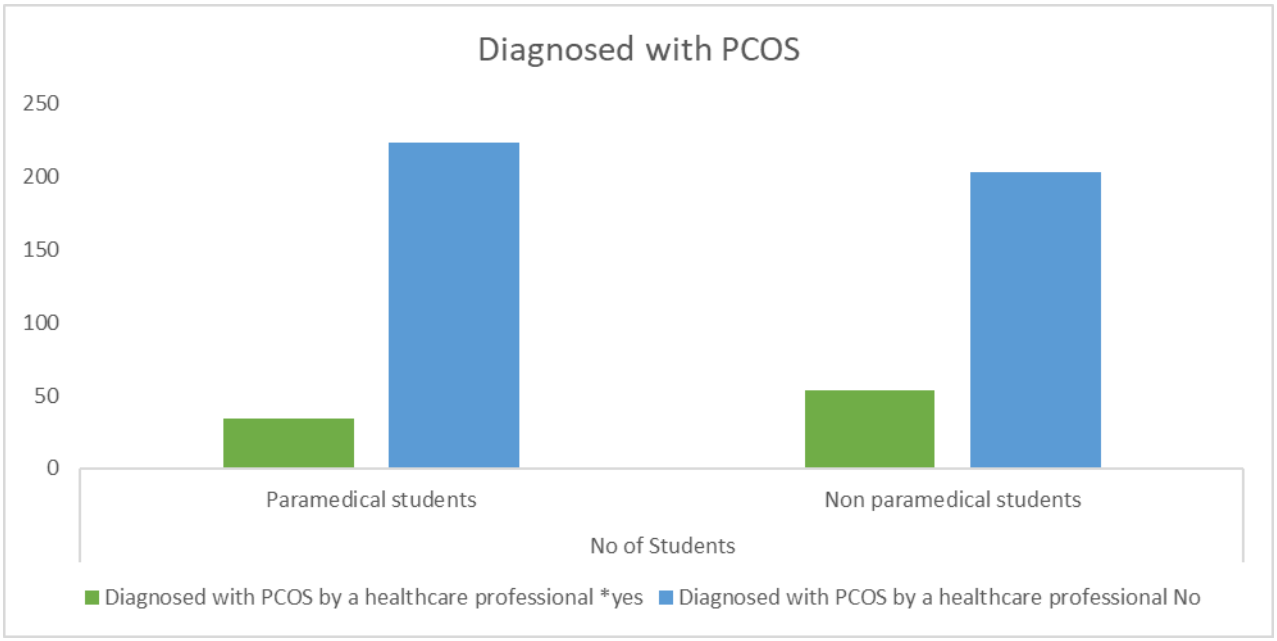

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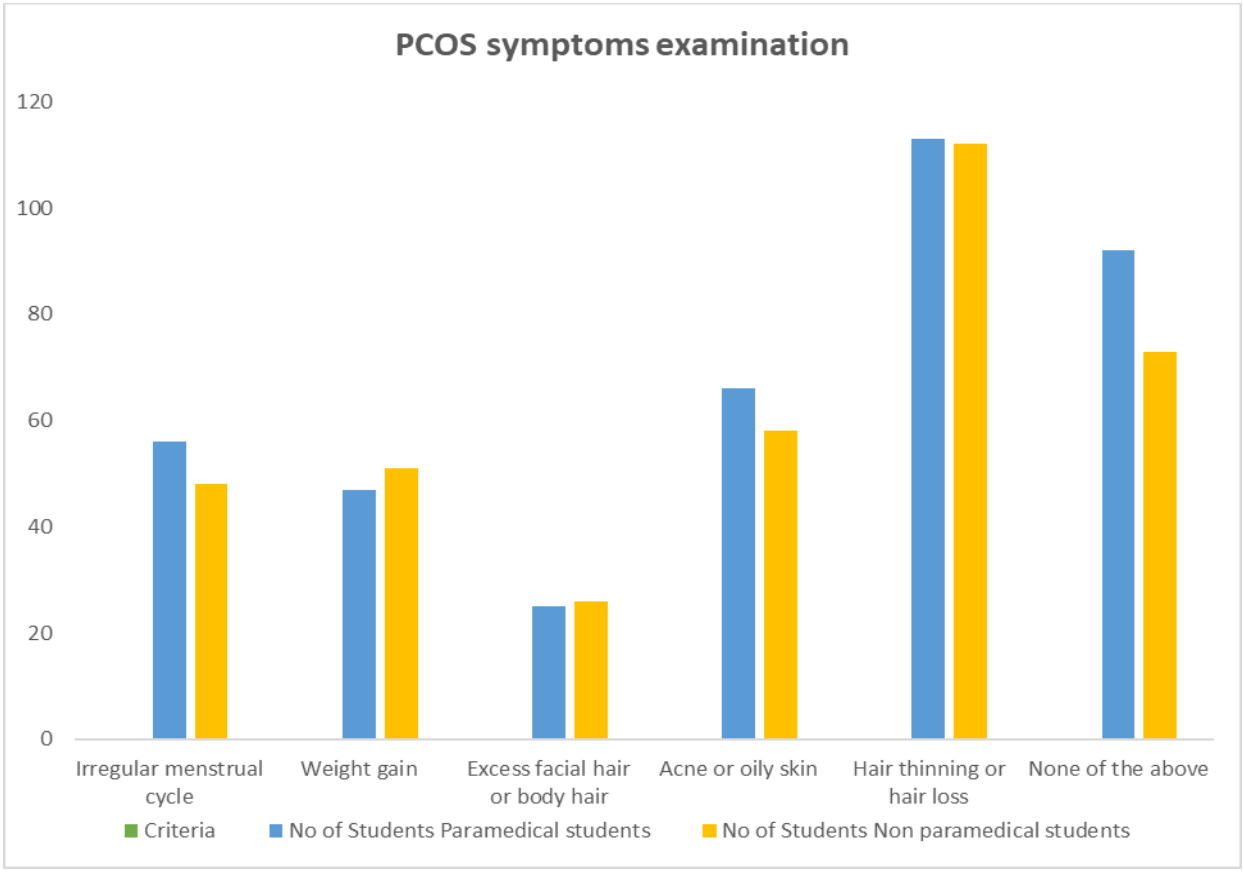

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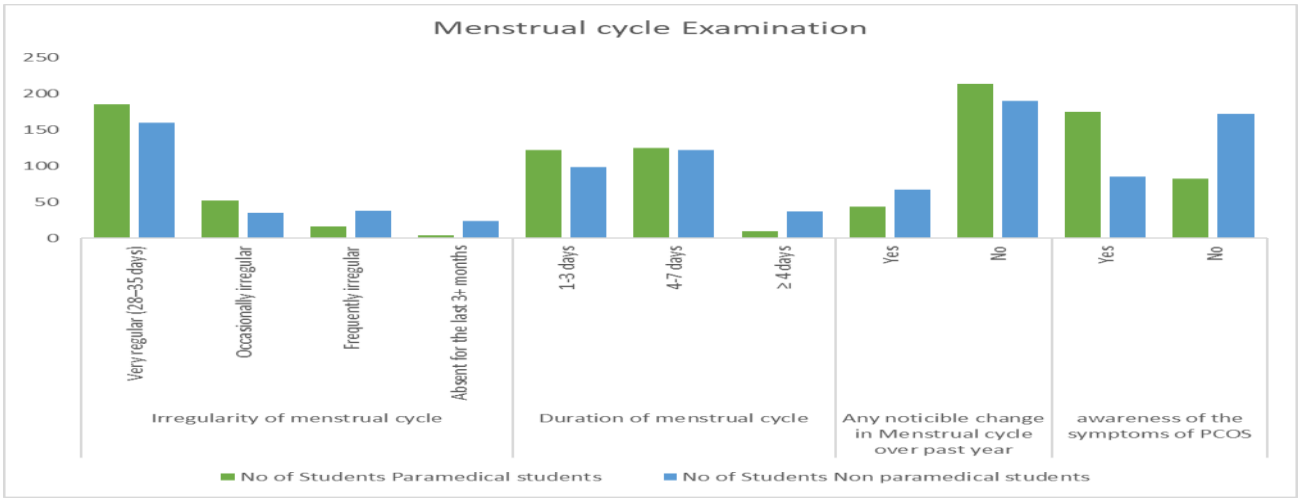

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Figure 6: A & B&C Represents the Diagnosed with PCOS, PCOS Symptoms and Experience & Menstrual cycle examination respectively.

PCOS prevalence was higher in non-paramedical students (21.01%) compared to paramedical students (13.22%) ($p = 0.026$). Menstrual irregularities were frequently reported among non-paramedical students (14.78%), compared to 6.22% of paramedical students ($p < 0.001$). Additionally, awareness of PCOS symptoms was significantly lower in non-paramedical students (33.07%) compared to paramedical students (68.09%) ($P < 0.0001$). Common symptoms such as weight gain, acne, and excessive facial hair growth were reported in higher percentages among non-paramedical students (Figure 6). These findings suggest that non-paramedical students not only experience higher PCOS prevalence but also have limited awareness of its symptoms, highlighting the need for targeted educational programs [Table 6].

TABLE 7: ANTHROPOMETRIC MEASUREMENT

Anthropometric data examination	Criteria	No of Students		Statistics
		Paramedical students (n=257) (%)	Non paramedical students (n=257) (%)	
BMI	<18.5: Underweight.	74 (28.79)	72 (28.01)	<0.0001
	18.5–24.9: Normal weight.	146 (56.8.)	110 (42.80)	
	25–29.9: Overweight.	16 (6.22)	16 (6.22)	

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	30+: Obese.	21 (8.17)	59 (22.95)	
waist circumference	**Less than 80 cm**	159 (61.86)	173 (67.31)	0.0001
	80–88 cm	92 (35.79)	54 (21.01)	
	More than 88 cm	6 (2.33)	30 (11.67)	

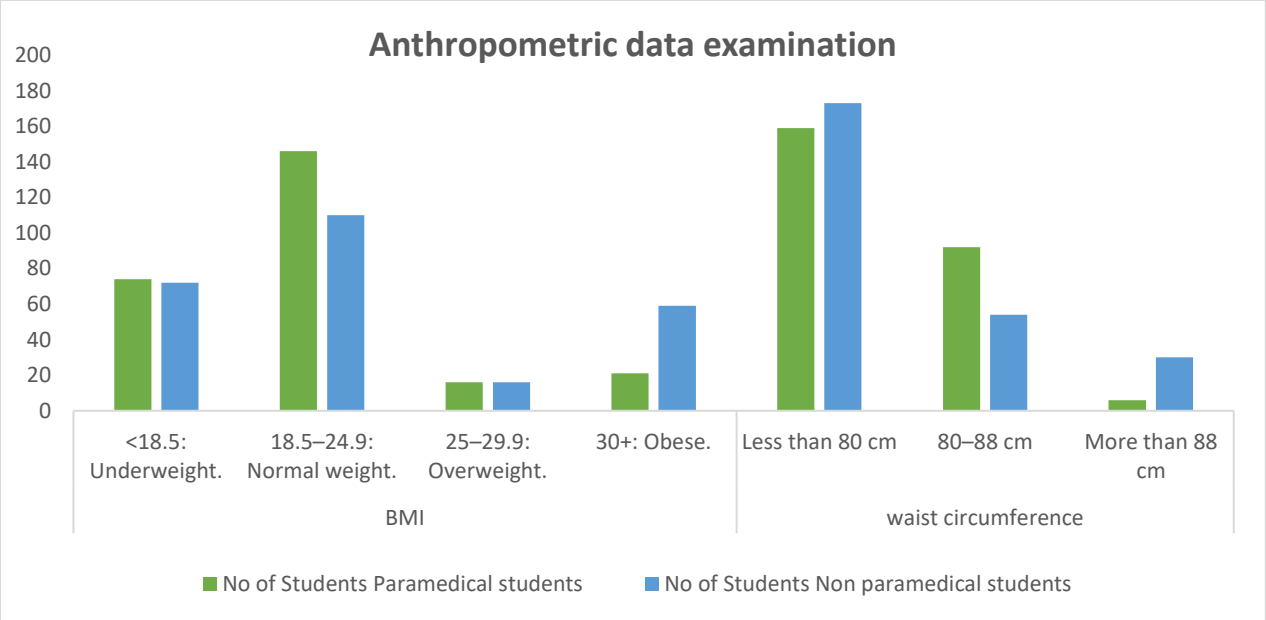

Figure 7: Represents Anthropometric data examination among Paramedical and non-paramedical

Anthropometric assessment indicated a higher prevalence of obesity among non-paramedical students. 22.95% of non-paramedical students were classified as obese, compared to 8.17% of paramedical students ($p < 0.0001$). Additionally, waist circumference above 88 cm was significantly higher in non-paramedical students (11.67%), compared to 2.33% of paramedical students ($p = 0.0001$) (Figure 7). These findings highlight an increased risk of metabolic disorders and cardiovascular complications in non-paramedical students, emphasizing the urgent need for lifestyle modifications to mitigate obesity-related health risks [Table 7].

4. Discussion

This comparative study assessed PCOS prevalence among paramedical and non-paramedical students, focusing on the role of lifestyle factors such as diet, sleep, physical activity, and stress management. The findings revealed that paramedical students exhibited a significantly lower incidence of PCOS symptoms, likely due to greater health awareness, better dietary habits, regular exercise, and lower stress levels, whereas non-paramedical students demonstrated a higher prevalence of PCOS symptoms, strongly associated with modifiable lifestyle risk factors. Poor dietary habits, particularly high consumption of processed foods and refined carbohydrates, contributed to insulin resistance and metabolic dysfunction, both of which are central to PCOS pathophysiology. Additionally, psychological stress, poor sleep quality, and physical inactivity were more prominent among non-paramedical students, exacerbating hormonal imbalances, menstrual irregularities, and PCOS severity. These findings align with previous research, which has established that sedentary behaviour, chronic stress, and poor nutrition play a crucial role in PCOS development and progression (10). Sleep disturbances in non-paramedical students were significantly associated with hypothalamic-pituitary-ovarian (HPO) axis disruptions, leading to menstrual irregularities and metabolic dysfunction (13).

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Additionally, increased stress levels among non-paramedical students may have contributed to excess cortisol secretion, which aggravates insulin resistance, promotes weight gain, and increases androgen levels, further intensifying PCOS symptoms observed differences between the two student groups emphasize the importance of health education and awareness in disease prevention, as students with greater exposure to health-related knowledge made more informed lifestyle choices, reducing their PCOS risk. This supports the need for targeted awareness campaigns and structured educational interventions, particularly for non-paramedical students, to bridge the knowledge gap in PCOS prevention and management. The study further reinforces the role of lifestyle modifications in PCOS management, as balanced dietary habits, reduced intake of refined carbohydrates, and regular physical activity enhance insulin sensitivity, regulate hormonal balance, and mitigate obesity-related complications. Previous research also highlights the role of micronutrients, particularly Vitamin D, Magnesium, and Omega-3 fatty acids, in improving insulin resistance and ovarian function, suggesting that dietary modifications should be integrated into PCOS treatment strategies. Effective PCOS management requires a multidisciplinary approach, lifestyle interventions, mental health support, and routine medical supervision, as many individuals remain undiagnosed due to limited awareness of PCOS symptoms, leading to delayed medical intervention. These findings highlight the urgent need for routine gynecological screenings and metabolic assessments in student health programs to facilitate early detection and timely management. Additionally, incorporating PCOS awareness programs in academic institutions and promoting structured lifestyle interventions could significantly reduce PCOS prevalence and severity over time. By addressing modifiable risk factors, this study contributes to the growing body of evidence supporting lifestyle-based interventions as a fundamental strategy for improving reproductive and metabolic health in young women.

CONCLUSION

This study highlights the significant association between lifestyle factors and PCOS prevalence among paramedical and non-paramedical students. PCOS was more prevalent in non-paramedical students (18.8%) compared to paramedical students (13.5%), likely due to lower health awareness, poor diet, physical inactivity, and higher stress levels. In contrast, paramedical students benefited from better health knowledge, balanced dietary choices, and active lifestyles, contributing to a lower prevalence of PCOS.

Key findings indicate that sleep deprivation was higher in non-paramedical students (8.94%) than paramedical students (1.94%), contributing to hormonal imbalances and insulin resistance. Unhealthy dietary habits were also more common in non-paramedical students (7.39%) compared to paramedical students (1.55%), leading to obesity and metabolic disturbances. Physical inactivity and stress levels were significantly higher among non-paramedical students, further increasing their risk of PCOS and its complications. Additionally, obesity was more prevalent in non-paramedical students (22.95%) compared to paramedical students (8.17%), reinforcing the link between weight gain and PCOS severity.

These findings emphasize the need for structured awareness programs on PCOS risk factors, early diagnosis, and lifestyle modifications, particularly among non-paramedical students. Regular screening, balanced nutrition, physical activity, stress management, and improved sleep hygiene can help reduce PCOS prevalence and severity. Further research is needed to explore long-term lifestyle interventions for improving hormonal and metabolic health in young women. Addressing modifiable risk factors through education and prevention strategies can help control the growing burden of PCOS and enhance overall well-being.

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