ACADEMIA International Journal for Social Sciences
Volume 4, Issue 2, 2025 ISSN-L (Online): 3006-6638

Prevalence of Academic Stressors, Coping Strategies and their Association with MSK Disorder among University Students in Karachi

Aqsa Khan
aqsamiskeen21@gmail.com
House officer (DPT), Jinnah Post Graduate Medical Centre

Urooj Pervaiz Hussain
druroojpervaiz@gmail.com
Physiotherapist, Jinnah Post Graduate Medical Centre
Corresponding Author: * Aqsa khan aqsamiskeen21@gmail.com

Received: 09-03-2025 **Revised:** 10-04-2025 **Accepted:** 07-05-2025 **Published:** 22-06-2025

ABSTRACT

There is a widespread presence of academic stress among university students hence having impact on musculoskeletal disorder(MSDs) .current study aims to found out the association between academic stress, coping strategies, MSK disorder among university students in Karachi . Awareness of these relationships can be useful to address the issues that affect students' health and their learning. Current cross-sectional study took 3 months and was conducted on 152 participants selected from Indus University. The sampling technique used was convenience sampling. The SSRS, NMQ, and CSQ were used to gather data of stress, musculoskeletal disorders, and coping strategies respectively. Statistical analyses included descriptive statistics, independent sample t-tests, chi-square tests, Pearson's correlation, and multiple linear regression using SPSS version 29. Out of the total 152 students,32.2% were male and 67.8% female, with a mean age of 22.78 ± 2. 52 years . Apparently, high stress was experienced by 73.03%, and 28.95% had high MSDs. Females had more reports of stress level 54.4% and MSD 72.4% than the males. Academic stress was clearly linked with MSDs in a statistically noticeable manner with a correlation coefficient of 0. 039 and coping strategies also correlated to stress with a coefficient of 0. 046. Among the perceived stresses, the students' self-report data showed that 73. 03% of them admitted to a high level of stress.. More so, respondents with MSDs were more female (72. 4%) as compare to male (27. 6%).

Keywords: *Musculoskeletal Disorder, Coping Strategies, Student's Health*

INTRODUCTION

Stress is universal contributors to health problems. It is pervasive in home, office, industry, and academic environments. Regardless of one's ethnicity or cultural background it is a fundamental component in life. Mental and physical symptoms may appear from our behavioral and physiological responses to stress. The Impact of stress vary with the ways it is perceived, and the coping strategies used differ among individuals and affected by ethnic, cultural, and socioeconomic characteristics. (1)

Prevalence of MSDs among college students has been anticipates to fluctuate between 32.9% - 89.3% in different parts of the world. (2) A study conducted in Australia, among students pursuing physical therapy found that the academic stress, contribute a major part in student stress, with a percentage of 71% respondent thinking that their studies are far harder than they expected it to be. Moreover, Jacob et al carried out a study in the Middle East, which proclaim a significant levels of stress among students enrolled in the courses of physical therapy, communication disorders, and nutrition. Recent meta-analyses reported that depression is significantly prevalent with a percentage of 11-43% among Asian university students enrolled in medicine and nursing courses.(3)

"Fear of failing a course or year" is the top ranked item in Colombia, seen as very stressful by >60% of the sample, while "examinations and grades" ranked the third. It doesn't seem novel, that university students from many countries report educational-related and general stressors e.g., in Canada, UK, Egypt, Japan, Iran, and Jordan: in Japan, >40% of students with in the past month suffered from headache, stomach ache/abdominal pain, and stiff shoulder/backache. While in UK and Egypt, the most common health complaint that reported in the last year were fatigue, headache, and difficulties to concentrate, back pain, neck/shoulder pain, and sleep disorder. (4) Many studies have reported high prevalence of MSD among physiotherapist, with 85% prevalence in Turkey, 91% in Australia and 91.3% in Nigeria. (3)

Cross-sectional studies conducted in Malaysia revealed that 41% of the participants encountered psychological stress which was strongly associated with depressive symptoms and 84% of respondents were academic related stressors. Conversely, the other studies done in Malaysia and Thai medical schools, shows the prevalence of stress among medical students was up to 41.9% and 61.4%, consequently. In Saudi Arabia a cross-sectional study carried out at College of Medicine, King Saud University, and report that the female students experienced more stress (75.7%) than their male peers (57%). Prevalence of stress was reported to be 20.9% in a Nepali medical school. 63.8% in a Saudi Arabian. According to cross-sectional study conducted in Ireland, the prevalence of stress among medical students is 71.9%. In relation to other key research revealed that a total of 2.7% of Sweden medical students attempt suicide due to stress. (6) According to the report in Pakistan, 57.5% of those polled have neck disorder. Due to stress during their medical studies, 19.3% have shoulder problems, and 22.8% have upper back problems. Majority have neck issues due to stress. (3)

About 60% of musculoskeletal problems among physiotherapists caused by MSDs associated with their profession. In 2016 Vincent- et al reported that the student who are subjected to a high workload are at higher risk of developing MSDs .In the Vincent- study 45.5% of physiotherapy undergraduate student suffered from low back pain. (5) MSD risk factors can be classified as psychosocial factors (such as emotional intelligence, perceived stress, mental fatigue etc.), personal factors (such as age, weight, height, BMI etc.) and occupational factors (such as manual material handling, static loading, work pace, repetitive movement, awkward postures etc.). (3)

Unsuitable chair positioning in packed class room along with poor study posture can impose a physical stress on muscle and joints and can cause muscle strain and joint imbalance. This may transform into a habit, which could raise the rate of more chronic, recurring pain and episodes of pain. An emerging body of evidence suggests that university students confront enormous amount of stress due to sophisticated academic workloads, the knowledge base required, and the perception of having inadequate time to develop it. Generally, students report the greatest sources of academic stress to be taking and studying for examinations with respect to grade competition and mastery of a large amount of information in a small amount of time. Various studies have consistently shown that examinations are among the most common of students' stressors. This stress can disrupt the internal and external environment of the student's body and cause physiological changes that tend to disturb homeostasis. (1).hence, Purpose of this study is to find significant association between stress and MSK disorder and to evaluate the effective coping strategies.

The Significance of Research

Students who are unable to pinpoint coping mechanisms for managing academic stress, which might result in a variety of physical and psychological issues. This study is successful in demonstrating a meaningful correlation between academic pressures and MSK disorder, we are enabled to both uncover effective coping mechanisms and raise awareness of them, as well as effectively manage the MSK disorder that is contributed to academic stress.

Rationale of Research

This study explore into the various method of coping used by university students in able to tackle the growing concerns about the prevalent nature of academic stress among these individuals. In addition this study investigate the potential association between the academic stressors and the incidence of MSK disorder, thereby providing key perspective on the link between academic pressure and physical well-being in this population . The aim of study was to gain a better grasp of these in order to create intervention and support system that have been tailored to alleviate academic stress and any potential damage that it could do to student physical health. This study act as an establishment for future examination investigating extra factors impacting scholarly pressure and ways of dealing with stress among college understudies.

Research Question

Determine the Prevalence of Academic Stressors, Coping strategies and their association with MSK disorder among university students in Karachi.

Hypothesis

There is a significant correlation between academic stressors and The prevalence of MSK disorder among university students in Karachi. However students experiencing higher academic stress and using less effective coping strategies are more likely to report MSK disorder.

LITERATURE REVIEW

A cross-sectional survey was done by Dorsa Nouri Parto et al in 2023 to evaluate Prevalence of musculoskeletal disorders and associated risk factors in Canadian university students. There were approximately 31,000 students enrolled at McMaster University, although it is unclear how many students were reached through our distribution system. Outcome measures included the total number of pain sites in each participant over the last week and the last 12 months in each year surveyed, Surveys were completed using a commercially available private survey platform named “Type form PRO”. As well as 3 section questionnaire in which first section includes a modified Nordic Musculoskeletal Questionnaire to assess musculoskeletal symptoms in nine body parts (i.e., neck, shoulder, elbow, wrist/fingers, upper back, lower back, hip/thigh, knee and ankle). The second section solicited information related to demographics, potential risk factors for musculoskeletal disorders such as smoking or drinking history, types of work surface and school bags, types of sport participation, physical activity levels, daily duration of cell phone usage or computer usage, and the total number of lecture hours. The third section included the Depression Anxiety Stress Scales-14. The findings show that there were a total of 289 respondents in 2018 with a decrease in the number of participants in the subsequent years. Participants reported a median of 2–3 pain sites in the last year and 1–2 pain sites in the last week in all four years. The most prevalent sources of self-reported pain were the lower back and neck. Although risk factors were different depending on the year and sex, overall, poorer mental health, being in health care studies, regular sports participation (males only), older age, and less hours of sleep were significantly associated with higher prevalence of MSKDs.(7)

A cross-sectional study was done by S G tejaswi et al in 2023 to determine the musculoskeletal pain among medical students and its association with perceived stress level in India. For the sample size a total of 200 students were enrolled in the study, fifty students each from the third, fifth, seventh, and ninth semesters. The outcome measures used were a questionnaire that included data regarding lifestyle habits and activities, the modified Nordic scale for musculoskeletal pain, perceived stress score (PSS-10), and Oswestry disability index (ODI) questionnaire. The study found that The majority of our medical students have experienced musculoskeletal pain in the past 12 months, which is significantly associated with perceived stress and quality of life.(8)

A cross-sectional study was done by Obadah Mohammed Hendi et al in 2021 to determine the Prevalence of Musculoskeletal Disorder and its Relation to Stress among Medical Student at Taif University, Saudi Arabia. For the sample size a total of 640 medical students were selected by multistage cluster sampling. The outcome measures were a standardized Nordic questionnaire and 10-k questionnaire. The study found that Among 640 medical students, 45.9% males and 54.1% females reported musculoskeletal pain, it was more prevalent among fourth – and sixth year students, and neck pain was the highest site of complaint, followed by low back pain and shoulder pain. Prevention of work was highest due to pain. More than half of medical students, with a significant association with females and preclinical students. Stress is a common psychological problem that affects two-thirds of medical students. However, we found a no significant association between the onset of musculoskeletal disorders and the level of stress among medical students. (9)

A cross-sectional study was done by R Anuradha et al in 2017 to determine the Stress and Stressors among Medical Undergraduate Students in Tamil nadu. Sample size was a 750 medical students from 1st year to final year. The outcome measures used were Self- administered questionnaire to collect data regarding socio demographic profile, perceived stress using perceived stress scale-14 and academic, psychosocial and environmental stressors. Logistic regression analyses were carried out to assess determinants of stress. The study found that the perceived stress was higher among higher age group and final year medical students. Academic, psychosocial, and environmental stressors are associated with perceived stress. Reframing the academic curriculum and examination patterns, incorporating recreational and sports activities, and establishment of counseling cells in the institution is needed. (10)

A cross-sectional study was conducted by Mustafa Ahmed Alshagga et al in 2013 to determine the Prevalence and factors associated with neck, shoulder and low back pains among medical students in a Malaysian Medical College. For the sample size 232 medical students in a private medical college were included. The outcome measures used were modified Standardized Nordic Questionnaire focused on neck, shoulder and low back pain in the past week and the past year. The study found that musculoskeletal pain among medical students was relatively high, thus, further clinical assessment is needed in depth study of ergonomics. The study results indicate that medical school authorities should take measures to prevent musculoskeletal pain due to factors related to medical school. Students should make aware of importance of weight reduction to reduce musculoskeletal pain. (11)

A cross-sectional study was done by Christopher E. Ekpenyong et al, in July 2013 to evaluate the associations between academic stressors, reaction to stress, coping strategies and musculoskeletal disorders among college students. The sample size was 1365 participants. the outcome measure was A four-section, semi structured, self-administered questionnaire was used to survey the participants. The first part requested general information on respondents' sociodemographic profile, such as age, sex, year of study, marital status, socioeconomic background of parents, area of residence, and participant's lifestyle (smoking, alcohol intake, and physicalactivity status). The second part of the questionnaire Was a 51 item assessment scale adapted from Student Life Stress Inventory (SLSI), and measures stressors and reaction to stressors by the respondent the third part of the questionnaire assessed participants' coping strategies using the Coping Strategies Questionnaire (CSQ). The fourth part of the questionnaire assessed the incidence of MSDs before and during the examination using the Short Musculoskeletal Function Assessment (SMFA). The finding of this study showed that the proportion of stressed students and individual stress levels were higher during the examination period than the pre-examination periods (i.e., the beginning of the semester). This coincides with the higher prevalence of MSDs recorded at the examination period. These findings provide added support to prior studies that implicate studying and taking examinations as the greatest source of academic stress among students. Current evidence suggests that academic stressors are good models of naturally occurring stress in humans , and a link between stressors peculiar to academic environments and the development of MSDs has been established.(1) A

cross-sectional study conducted by Sami Abdo Radman Al-Dubai, et al in 2011 to evaluate Stress and Coping Strategies of Students in a Medical Faculty in Malaysia. The sample size of the study was 376 medical and medical sciences undergraduates in Management and Science University in Malaysia. The outcome measure use were Stress was assessed by a global rating of stress. Sources of stress were assessed using a 17-item questionnaire. The validated Brief COPE inventory was used to assess coping strategies. The finding of study were the majority of respondents were females, aged 21 years or older and were Malays. Forty-six percent felt stress. The most common stressor was worries of the future, followed by financial difficulties. Significant predictors of stress were smoking worries of the future self-blame, lack of emotional support, and lack of acceptance .Students used active coping, religious coping reframing, planning, and acceptance to cope with stress. (12)

A cross-sectional study done by Hamza M. Abdulghani et al in 2011 to determine Stress and Its Effects on Medical Students in Saudi Arabia. For the sample size all the medical students in the five academic years of the College of Medicine, King Saud University were encouraged to fill the questionnaire , In total, 775 of approximately 892 students completed the questionnaire. The outcome measures use were Beck's Depression Inventory, General Health Questionnaire (GHQ), and the Kessler10 Psychological Distress instrument (K10) developed by Kessler and colleagues.

The study found that the prevalence of stress was higher during the initial three years of study and among the female students. Physical problems are associated with high stress levels. Therefore, Preventive mental health services could be made an integral part of routine clinical services for medical students, especially in the initial academic years, to prevent such occurrence.

(13)

A cross-sectional study was done by Mohsin Shah et al in 2010 to determine the Perceived stress, sources and severity of stress among medical undergraduates in a Pakistani medical school. The sample size was 200 during January to March 2009.the outcome measures used were perceived stress scale and a 33-item questionnaire was used to assess sources of stress and their severity. The study found that a higher level of perceived stress was reported by the students. The main stressors were related to academic and psychosocial domains. Further studies are required to test the association between stressed cases and gender, academic stressors and psychosocial stressors. (14)

This descriptive cross-sectional study was performed by Naiemeh Seyedfatemi et al in 2007 to determine sources of stress and coping strategies in nursing students studying at the Iran Faculty of Nursing & Midwifery. For the sample size all undergraduate nursing students enrolled in years 1-4 during academic year 2004-2005 were included in this study, with a total of 366 questionnaires fully completed by the students. The outcome measures used were Student Stress Survey and the Adolescent Coping Orientation for Problem Experiences Inventory (ACOPE) for data collection. The study found that students often experience stress from interpersonal sources such as finding new friends, working with unfamiliar people, starting college, increased class workload, and being placed in unfamiliar situations. Academic sources were more common, with increased class workload being the most common. Interpersonal and environmental sources were more frequent, with first-year students reporting greater stress. Coping strategies include family problem-solving, self- reliance, social support, spirituality, seeking diversions, and seeking close relationships. Avoiding strategies like smoking, swearing, and professional support were used rarely or never. Humorous strategies were rarely used. (15)

METHODOLOGY

A questionnaire was used to ask students (who meet the inclusion criteria)students questions about the subject. The students were informed of the goal of the questionnaire and their agreement was obtained.

Population of interest

The specific goal of the study is those with MSK disorder associated with academic stressors and coping strategies. This encompass a diverse group of university students, including individuals of varying age and genders. The aim is to identify the academic stressors associated with MSK disorder and the awareness of coping strategies to cope up the stress through the administration of the questionnaire.

Inclusion criteria

- The data were collected from male and female students.
- Undergraduate students
- Both medical and non-medical department students.

Exclusion criteria:

- Pregnancy
- Diabetes mellitus
- Students suffering from any other neurological conditions or suffering from non-communicable diseases are excluded.

Study design

Cross-sectional study design allow for the simultaneous examination of the variables of interest (Academic Stressors associated with MSK disorder among university students in Karachi)in a specific population at a specific point in time .which is why the research on academic stressors associated with MSK disorder among university students used one .without changing any factors, this kind of study offers a snapshot of the existing state of affairs.

Study setting

1. Indus University.
2. Federal Urdu university.
3. Jinnah university of women.

Study Duration

study duration was 6 months after the approval of Synopsis.

Sample Size

It was calculated using online sample size calculator for proportion available at www.openepi.com version 3.01, after inserting 36.5% prevalence of MSDs at 8% margin of error and 95% confidence interval we required at least N=152 samples for this study. (1)(9)

Sampling Technique

The sampling technique was Convenient sampling.

Sampling Selection

The search were employ a random Sampling method to select participants. An assortment of individual with MSK disorder associated with academic stress compile from different source The

selection process was unbiased and convenient ensuring representation from diverse demographic groups. The inclusion criteria includes students from both medical and non-medical fields, male and females Enrolled in undergraduates' program. Participation were voluntary with consent obtained before administering the questionnaire.

Outcome Measures

The research analyzes questionnaire responses from participants to gauge their understanding and impressions of MSK disorder linked to academic stressors.

Variables

Independent Variables

In the study independent factors include things like age, gender, height, weight, BMI.

Dependent Variables

The study's main objective was to determine the Prevalence of Academic Stressors Coping strategies and their association with MSK disorder among university students in Karachi.

Data Collection Plan

Individual recruitment was occur from different universities with participants providing informed consent. Train personnel administered a detailed questionnaire covering demographic information, pain history, Coping strategies uses And knowledge and perception about the MSK disorder associated with Academic stressors simple convenient sampling method were employed for unbiased participant selection and the sample size were determined statistically. The plan underscore a systemic and ethical approach to achieve the research objective within a defined time frame emphasizing the importance of robust data collection and analyses methods.

Data analysis plan

The research on prevalence of academic stressors, coping strategies and there association with MSK disorder among university students in Karachi employs a systematic approach as part of its analysis strategy. the study employed descriptive statistics to provide an overview of participant characteristics including demographic data and information pertaining to the condition. Inferential statistics were employed to investigate connection between academic stresses and MSK disorder and relevant variables. potential confounding factors such as age, gender, height, weight and BMI were taken into account . Statistical test like chi- square or regression analysis, were utilize to evaluate the significance of these connections. reporting confidence intervals and P- values conveys the level of certainty in the findings. the data analysis plan underscore a through examination of collected data ensuring a rigorous and systematic approach to drive meaningful conclusion regarding the Prevalence of academic stressors, coping strategies and their association with MSK disorder among universities students in Karachi.

RESULT

Socio-demographic variables of the 152 students who participated in this study showed that (n=49) (32.2%) were males and (n=103) (67.8%) were females. The mean (±SD) age and BMI of respondents were22.78 ± 2.52 (years) and 21.12 ± 3.98 (kg/m2) respectively. Also, 99.9% were single Additionally 55 (72.4%) of the participants had MSDs with higher prevalence among females, than 21 (27.6%).

Table: 1 Socio-Demographic characteristics of respondents

Variable	Total (n=152)	With MSDs	Without MSDs	P-value

		(n=76)	(n=76)	
Age (years)	22.78 ± 2.52	22.77 ± 2.38	22.79 ± 2.67	0.9624
BMI (kg/m²)	21.12 ± 3.98	22.11 ± 4.46	20.13 ± 3.28	0.0042
Gender (Female)	103 (67.8%)	55 (72.4%)	48 (63.2%)	0.2192
Gender (Male)	49 (32.2%)	21 (27.6%)	28 (36.8%)	0.2192
Height (feet)	5.42 ± 0.34	5.38 ± 0.32	5.46 ± 0.36	0.1191
Weight (kg)	56.49 ± 12.50	59.91 ± 14.22	53.08 ± 9.85	0.0010

Variable1	Variable2	Correlation (R-Values)	P-value
CSQ Scale	SSR Scale	0.15	0.046
NMQ Scale	SSR Scale	0.139	0.039
NMQ Scale	CSQ Scale	-0.008	0.921

Table: 2 Distribution of stress among respondents before and during examination

Stress	Male (n=49)	During\ Examination\N (%)	P-value	Female (n=103)	During\ Examination\N (%)	P-value
Low	22 (44.9%)	19 (38.8%)	0.602	56 (54.4%)	47 (45.6%)	0.219
High	27 (55.1%)	30 (61.2%)	0.602	47 (45.6%)	56 (54.4%)	0.219

Shows significant gender differences in the number of respondents who experienced a high level of stress before and during the examination: more females 56 (54.4%) experienced a high level of stress than did males30 (61.2%) during the examination. Distribution of academic stressors based on gender shows Significance levels:

$p \leq 0.05$, : $p \leq 0.01$, : $p \leq 0.001$.

TABLE 3

SSRS Category	Frequency	Percentage
High Stress	111	73.03%
Moderate Stress	30	19.74%
Low Stress	11	7.24%

As shown in table 3 the subjects were relatively undergraduate's students out of which 73.03% showing 1.1 frequency for high stress, 19.74%were having 30 frequency for moderate stress and lastly 7.24%with frequency of 11 showed low stress on SSRS categorization.

TABLE 4

Shows the various strategies adopted by the respondents to cope with stress. Significance levels: ns: not significant, $p \leq 0.05$, $p \leq 0.01$, and $p \leq 0.001$. However, females adopted more active practical 55 (53.4%) than men did, 21 (42.9%).

Coping Strategies	Total (n=152)	Male (n=49)	Female (n=103)	P-value
CSQ Scale	152			
High	76 (50.0%)	21 (42.9%)	55 (53.4%)	0.249
Low	76 (50.0%)	28 (57.1%)	48 (46.6%)	0.249

TABLE:5 PEARSON'S CORRELATION

It shows a correlation between SSRS,NMQ and CSQ scale respectively .in which there is a positive correlation between CSQ-SSRS (P=0.046) and NMQ-SSRS(P=0.039) while NMQ-CSQ (P=0.921) was non-significant.

TABLE 6: MULTIPLE LINEAR REGRESSION FOR THE ASSOCIATION BETWEEN ACADEMIC STRESSORS,COPING STRATEGIES AND THEIR ASSOCIATION WITH MSK DISORDER AMONG UNIVERSITY STUDENTS

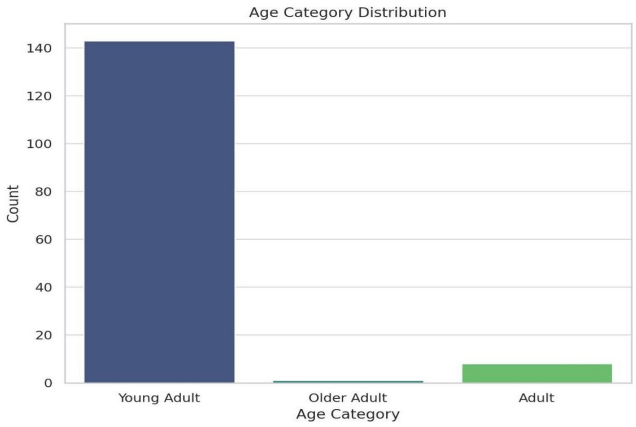
Variable	β (NMQ Scale)	P (NMQ Scale)	β (SSR Scale)	P (SSR Scale)	β (CSQ Scale)	P (CSQ scale)
Age	0.238	0.003	-0.202	0.015	-0.102	0.236
Gender	-0.251	0.027	0.051	0.659	0.162	0.173
Height	0.004	0.991	-0.202	0.6	0.03	0.975
Weight	0.3	0.636	0.356	0.579	-0.197	0.765
BMI	-0.161	0.769	-0.184	0.74	0.117	0.833
SSRS_scale	0.187	0.022			0.135	0.114
CSQ_scale	0.095	0.238	0.115	0.159		
NMQ_scale			0.191	0.022	0.015	0.859

It shows a P and B values of NMQ, CSQ, and SSRS.

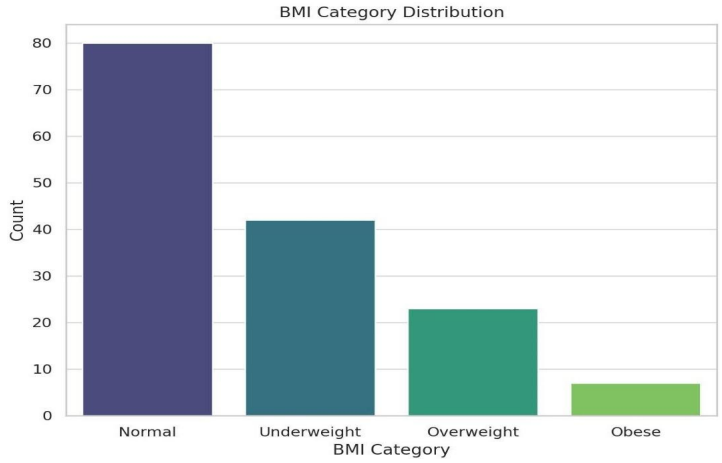
IMPORTANT FREQUENCIES

AGE

Age Category	Frequency	Percentage
Young Adult	143	94.08%
Adult	8	5.26%
Older Adult	1	0.66%

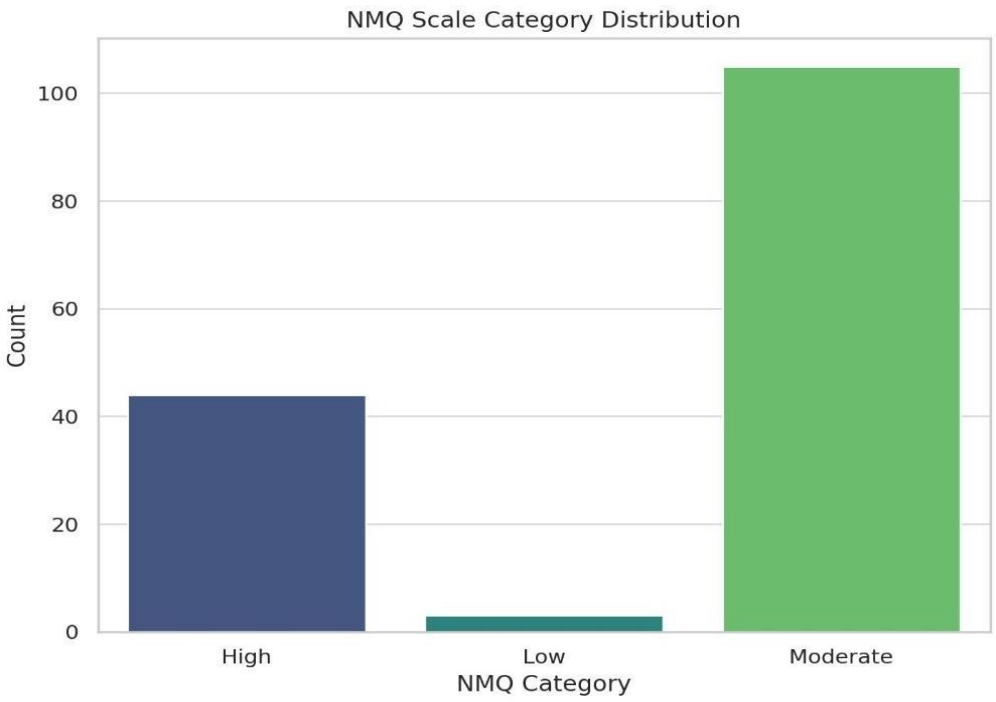


BMI



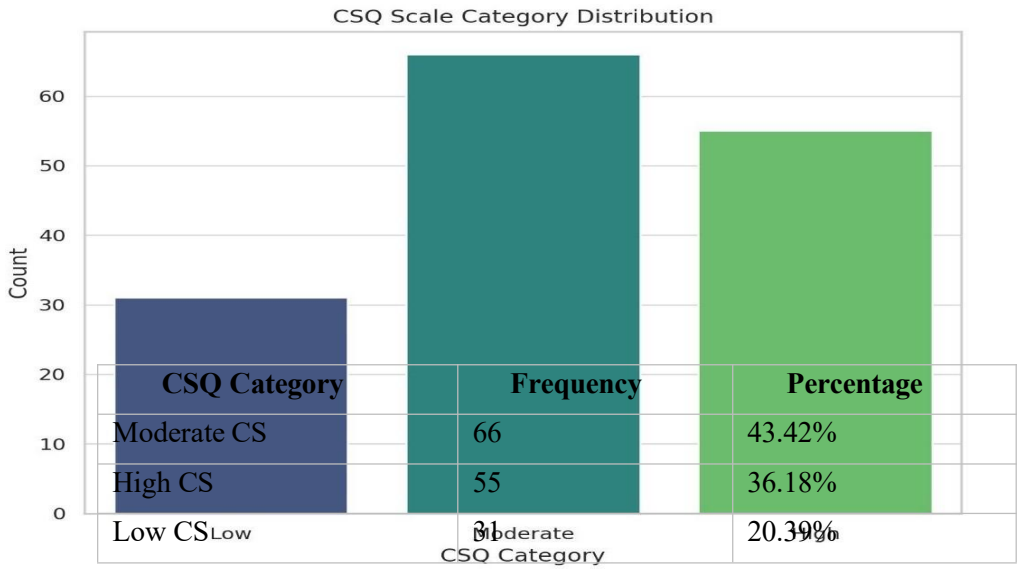
BMI Category	Frequency	Percentage
Normal	80	52.63%
Underweight	42	27.63%
Overweight	23	15.13%
Obese	7	4.61%

NORDIC MUSCULOSKELETAL QUESTIONNAIRE



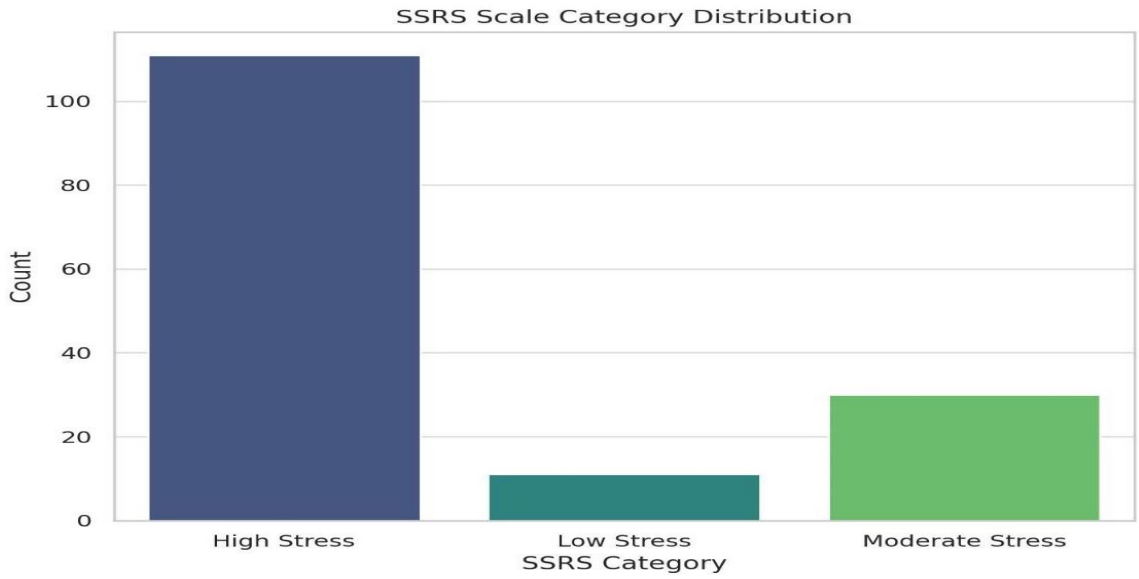
NMQ Category	Frequency	Percentage
Moderate	105	69.08%
High	44	28.95%
Low	3	1.97%

COPING SCALE



CSQ Category	Frequency	Percentage
Moderate CS	66	43.42%
High CS	55	36.18%
Low CS	31	20.39%

STUDENT STRESS RATING SCALE



DISCUSSION

The aim of current study is to found out about the prevalence of academic stressors, coping strategies and their association with MSK disorder among university students in Karachi. The results of current study showed that the proportion of stressed students and individual stress levels were higher in males than females during the examination period which was insignificant than the pre-examination periods. It shows the significant association between academic stress and development of MSD disorder .while the coping strategies used by students is higher in females than males .while previously study conducted by Christopher et al on associations between academic stressors, reaction to stress, coping strategies and musculoskeletal disorders among college students concluded that he higher levels of stress and MSD found among female participants which could be because women naturally tend to perceive more stress than men they have stronger reactions (mostly emotional) to stress than men do ,and they generally desire to be noticed and loved and to seek perfect solutions to problems .unlike men, women are physiologically predisposed to autoimmune diseases, chronic pain, depression, and anxiety disorders. There are strong indications that these may be sex-hormone mediated the higher prevalence rate of MSD found among female students in the previous study could have depended on their reactions to stress and the particular coping strategies adopted to cope with high academic demands. Men adopted more active practical and distracting coping, which are problem-focused, whereas women adopted more religious and avoidance coping strategies, which are emotion-focused in nature. Which is contrary to current study because of the gender differences of participants (more female's participants than males), small sample size and use of different sampling technique. (1)

In current study we found that the prevalence of MSD was moderate among university students. This prevalence was found to be significantly associated with the female gender compared to the male gender. Current study found that of students had high level stress. There was not much difference in the prevalence between females and males, which was not statistically significant.. In current studies the association between academic stress and MSD disorder is significant .while previous study conducted by Obadiah et al on prevalence of musculoskeletal disorder and its relation to stress among medical student at Taif university, Saudi Arabia stated that the prevalence of MSD was high among Saudi medical students, and of medical students reported pain in at least one site during the past year. Which is contrary

to current study due to different interested population. High prevalence was found to be significantly associated with the female gender compared to the male gender which is parallel to current study due to same gender. MSD were found to be significantly associated with educational level because they were found to be more frequent among the preclinical year students, especially the second and third year students. Which is contrary to our study. Previous study found that had abnormal levels. Previous study showed that there was not much difference in the prevalence between females and 2males, which was not statistically significant. Which is similar to current study while previous study found no association between the onset of MSD and the level of stress , which is contrary to current study due to difference in interested population.(9)

In current study reported high MSD disorder percentage while shows moderate MSD disorder percentage. And there was a significant association between academic stress and MSD .However, according to previous study conducted by sayed et al on the relationship between the development of musculoskeletal disorders, body mass index, and academic stress in Bahraini university students concluded that a total of reported MSD in one or more body part, with the prevalence being higher among women than among men. There was a significant relationship between academic stress and MSD in the neck, shoulders, lower back, and hips, which is parallel to current study.(2)

In current study study shows the significant association between academic stress and development of MSD disorder while previous study conducted by Muhammad farsi et al stated that there is a strong association between B.o and MSD. The cervical and neck area is more prevalent then the upper back and shoulder. Which is parallel to current study. (6)

LIMITATIONS

- Compared to other sampling techniques convenient sampling might reduce the generalization of the results.
- However, the sample size used was fairly appropriate though a bigger sample size could have given a more accurate and reliable result.
- The use of questionnaires could also cause response bias since the data collected is dependent on the subjects' ability to report accurate information.

STRENGTHS

- Participants comprised both the medical and non-medical students, maybe giving a wide outlook to the subject.
- Some of the tools for data collection included SSRS; NMQ, CSQ among others are all valid tools.
- Based on the study, a direct correlation between academic stress and MSDs was described and explained clearly.

RECOMMENDATIONS

- Carry out cross sectional and over time research in order to determine impact of academic stress and their coping mechanisms on MSDs.
- Develop and incorporate strategies for the alleviation of academic related stress and prevention of MSD's in students.
- Practice concerns on increasing the sample size in future studies to boost the external validity of the results.
- Future studies should look into the kind of coping mechanisms to use and what effects they have on the levels of stress reduction and prevention of MSD's among students.

CONCLUSION

The research aimed to compare and find the percentage of academic stressors and coping mechanisms, as well as the connection between MSDs and university students at Indus University. Among the perceived stresses, the students' self-report data showed that 73. 03% of them admitted to a high level of stress. The findings of MSDs were moderately high with 28 percent of the students complaining of MSD related ailments. 95 percent stating high MSD and 69 percent finding high MSD universally. 08% reporting moderate MSD. More so, respondents with MSDs were more female (72. 4%) as compare to male (27. 6%).Findings of the study suggested that sex influenced exams stress to a relatively small extent and that males were stressed to the same degree as the females. However, females used more of the active coping (53. 4%) than the male respondents (42. 9%).On academic stress and the development of MSDs, the difference was statistically significant (p = 0. 039).although, the specific rates of prevalence, vary due to differences of, participants and methods. The coping strategies adopted were also reasonably high with females' exercising this more than the male.

REFERENCES

Abbott A. The coping strategy questionnaire. Journal of physiotherapy. 2010;56(1):63

Abdulghani HM, AlKanhal AA, Mahmoud ES, Ponnamperuma GG, Alfaris EA. Stress and its effects on medical students: a cross-sectional study at a college of medicine in Saudi Arabia. J Health Popul Nutr. 2011 Oct;29(5):516-22.

Abebe AM, Kebede YG, Mengistu FA. Prevalence of Stress and Associated Factors among Regular Students at Debre Birhan Governmental and Nongovernmental Health Science Colleges North Showa Zone, Amhara Region, Ethiopia 2016. Psychiatry Journal . 2018 Sep 2;2018:1–7

Al-Dubai SA, Al-Naggar RA, Alshagga MA, Rampal KG. Stress and coping strategies of students in a medical faculty in malaysia. Malays J Med Sci. 2011 Jul;18(3):57-64.

Alshagga MA, Nimer AR, Yan LP, Ibrahim IA, Al-Ghamdi SS, Radman Al-Dubai SA. Prevalence and factors associated with neck, shoulder and low back pains among medical students in a Malaysian Medical College. BMC Res Notes. 2013 Jul 1;6:244.

Ansari WE, Khalil K, Stock C. Symptoms and Health Complaints and Their Association with Perceived Stressors among Students at Nine Libyan Universities. International Journal of Environmental Research and Public Health . 2014 Nov 25;11(12):12088–107.

Anuradha R, Dutta R, Raja JD, Sivaprakasam P, Patil AB. Stress and Stressors among Medical Undergraduate Students: A Cross-sectional Study in a Private Medical College in Tamil Nadu. Indian J Community Med. 2017 Oct-Dec;42(4):222-225.

Balamurugan M, Kumaran D. Development and Validation of Students' Stress Rating Scale (SSRS). 2008;7:35–42.

Chesney, M. A., Neilands, T. B., Chambers, D. B., Taylor, J. M., & Folkman, S. (2006). A validity and reliability study of the coping self-efficacy scale. British Journal of Health Psychology, 11(3), 421–437

Deng Y, Cherian J, Khan NUN, Kumari K, Sial MS, Comite U, et al. Family and academic stress and their impact on students' depression level and academic performance. Frontiers in Psychiatry [Internet]. 2022 Jun 16;13.

Ekpenyong CE, Daniel NE, Aribo E. Associations between academic stressors, reaction to stress, coping strategies and musculoskeletal disorders among college students. Ethiop J Health Sci . 2013;23(2):98–112

Fauzi MF, Anuar TS, Kek TL, Lim WF, James RJ, Ahmad R, et al. Stress, Anxiety and Depression among a Cohort of Health Sciences Undergraduate Students: The Prevalence and Risk Factors. International Journal of Environmental Research and Public Health . 2021 Mar 22;18(6):3269.

Hendi OM, Alturkistani LH, Bajaber AS, Alhamoud MA, Mahmoud Mahfouz ME. Prevalence of Musculoskeletal Disorder and its Relation to Stress Among Medical Student at Taif University, Saudi Arabia. Int J Prev Med. 2021 Jul 29;12:98.

Ilyas T, Anwar M, Tabassum MN, Maqbool S, Ain Q, Asghar M. Incidence of Burnout and its Relationship with Musculoskeletal Disorders among Healthcare College Students in Lahore, Pakistan. Pakistan Journal of Medical and Health Sciences. 2022 Oct 30;16(10):147–9.

Monticone M, Ferrante S, Giorgi I, Galandra C, Rocca B, Foti C. The 27-Item Coping Strategies Questionnaire — Revised: Confirmatory Factor Analysis, Reliability and Validity in Italian-Speaking Subjects with Chronic Pain. Pain Research & Management [Internet]. 2014 Jan 1;19(3):153–8.

Nerys Williams, The Short Musculoskeletal Function Assessment (SMFA) questionnaire, Occupational Medicine, Volume 66, Issue 9, 19 December 2016, Page 757.

Parto, D.N., Wong, A.Y. & Macedo, L. Prevalence of musculoskeletal disorders and associated risk factors in canadian university students. BMC Musculoskelet Disord 24, 501 (2023).

Seyedfatemi N, Tafreshi M, Hagani H. Experienced stressors and coping strategies among Iranian nursing students. BMC Nurs. 2007 Nov 13;6:11.

Shah M, Hasan S, Malik S, Sreeramareddy CT. Perceived stress, sources and severity of stress among medical undergraduates in a Pakistani medical school. BMC Med Educ. 2010 Jan 15;10:2.

SWIONTKOWSKI, MARC F. M.D.†; ENGELBERG, RUTH PH.D.‡; MARTIN, DIANE P. PH.D.‡; AGEL, JULIE M.A.†, SEATTLE, WASHINGTON. Short Musculoskeletal Function Assessment Questionnaire: Validity, Reliability, and Responsiveness*. The Journal of Bone & Joint Surgery 81(9):p 1245-60, September 1999.

Tantawy SA, Rahman AA, Ameer MA. The relationship between the development of musculoskeletal disorders, body mass index, and academic stress in Bahraini University students. The Korean Journal of Pain [Internet]. 2017 Apr 30;30(2):126– 33.

Thejaswi SG, Mukerji A, Baliga S, Dewan SK, Verma A. Musculoskeletal pain among medical students and its association with perceived stress level: A cross- sectional study. J Educ Health Promot. 2023 Apr 28;12:143.