Original Article

The Impact of Work-Related Musculoskeletal Pains on Routine Tasks Among Operating Room Nurses: A Cross-Sectional Study

Usman Khalid[1], Muhammad Saleh Amir[2], Ramzan Hassan[2], Manahil Asmat[2], Ayesha Abrar[2]

[2]Final Year MBBS, Rawalpindi Medical University, Rawalpindi

[1]PGT, Surgery Department, Rawalpindi Medical University, Rawalpindi

[3]Assistant Professor, Community Medicine Department, Rawalpindi Medical University, Rawalpindi

Author's Contribution

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Corresponding Author

Muhammad Saleh Amir,
Final Year MBBS Student,
Rawalpindi Medical University,
Rawalpindi
Email: msalehamir02@gmail.com

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Abstract

Background: To determine work-related musculoskeletal pain (MSP) among 105 operating room nurses (ORNs) and its effect on their routine work.

Design: Multicenter cross-sectional design. Methods: This study was conducted with 105 nurses working in operating rooms of five different hos- pitals between December 15, 2024, and February 15, 2025. Data were collected using the "Nordic Mus- culoskeletal Questionnaire." SPSS 27.0 was used for data analysis, and a significance level of $p < .05$ was established.

Results: Among the nurses, 75.2% were female, 78.1% had undergraduate education, and 59% worked >40 hours/week. In the previous 12 months, 69.5% of ORNs experienced lower back pain; 68.6%, neck pain; and 61.9%, back pain. The duration spent working as a scrub nurse increased the possibility of experiencing pain in the hands, wrists, back, shoulders, and lower back region ($p < .05$), and women had an increased risk of lower back and back pain ($p < .05$). Neck, lower back, back, wrist, and hand pain increased the risk of being unable to perform daily tasks ($p < .05$). Conclusions: Extended work hours as a scrub nurse increase the risk of MSP, including lower back region, neck, and back pain among ORNs. Women have a higher risk of lower back and back pain. Addressing musculoskeletal issues in this profession is crucial.

Clinical Implications: Addressing musculoskeletal discomfort is vital because of its impact on nurses' job performance and potential patient harm. Providing ergonomic equipment, training nurses on mus- culoskeletal health, and raising awareness can help. It is also important to encourage regular breaks.

Introduction

WHO defines mental health as the state Musculoskeletal pain (MSP) is a major global concern affecting approximately 1.71 million people in 2023 according to the World Health Organization (WHO). Currently, the prevalence of MSP is high and is projected to increase further (World Health Organiza- tion, 2023). MSP imposes substantial direct and indirect burdens on individuals and governments (Asghari et al., 2019). Work-related MSP reduces work productivity, increases disability rates, and ele- vates social and economic burdens due to absenteeism and sick leave (Choi & Brings, 2015; Rypicz et al., 2020). Resultant actions, such as early retirement may have long-term economic impacts (Rypicz et al., 2020). Many occupational dangers in operating rooms have the po- tential to cause MSP among healthcare staff (Martí-Ejarque et al., 2021). Several occupational diseases have been associated with MSP (Anderson & Oakman, 2016) and are thus considered impor- tant sources of morbidity among operating room nurses (ORNs) (Asghari et al., 2019; Jacquier-Bret & Gorce, 2023). A comprehen- sive analysis found that between 33% and 88% of nurses reported having discomfort in any part of their bodies (Soylar & Özer, 2018). In a recent meta-analysis, the prevalence of lower back pain among ORNs was 55% (Tavakkol et al., 2020). ORNs face increased physical and biomechanical dangers dur- ing their everyday work, increasing the risk of MSP. One of the most prominent risk factors for work-related MSP is static stress. Rapid movements during crises and holding the same posture for an extended period, nonergonomic positions during surgery, and the performance of continuous repetitive, monotonous move- ments, depending on the type and duration of surgery could play a role. This scenario can lead to constant static loading and pos- tural stress on ORNs. Exposure to dynamic stresses in the work- place, such as pushing, pulling, or lifting heavy objects involv- ing patients and surgical equipment, can trigger work-related MSP (Choobineh et al., 2010; Asghari et al., 2019). The physical and ergonomic risks that ORNs encounter at work may cause func- tional impairments in the musculoskeletal system and a decline in their quality of life (Beaudart et al., 2018). Sociodemographic characteristics also increase the risk of work-related MSP (Choi & Brings, 2015; Karimi et al., 2018; Rosa et al., 2021). Female sex, high body mass index (BMI), and obesity placed individ- uals at higher risk (Choi & Brings, 2015; Karimi et al., 2018; Rosa et al., 2021). According to a recent meta-analysis, full-time female ORNs had a higher risk of work-related MSP (Clari et al., 2019). The reduction in estrogen levels in women leads to muscle and bone loss, resulting in sarcopenia and osteoporosis. This condi- tion causes functional loss and pain in the musculoskeletal system (Abidin, 2023). Previous research has identified several factors that contribute to the development of MSP. These factors can be individual, biome- chanical, and psychosocial (Asghari et al., 2019). MSP can be in- fluenced by individual factors such as age, gender, genetics, nu- trition, physical activity, weight, working conditions, psychological states, and chronic diseases. These range from genetic predisposi- tions to lifestyle choices, with aging, poor nutrition, a sedentary lifestyle, and constant stress playing decisive roles in the develop- ment of pain. Research has examined the roles of biomechanical, physical, psychosocial, and organizational factors in the develop- ment of MSP. Bin Homaid et al. (2016) reported that risky activ- ities contribute to back pain among ORNs.

Such activities include lifting objects from lower back level, twisting the body while bear- ing weight, transferring patients to beds and chairs, pulling pa- tients up in bed, and positioning patients in bed, all of which can increase back pain (Homaid et al., 2016). Rest and analgesics are among the recommended palliatives for such pains. Psychological work stress is an occupational risk factor contributing to the preva- lence of work-related MSP among ORNs (Long et al., 2012). MSP in ORNs is often linked to inadequate organization of the work envi- ronment and poor working conditions (Bernal et al., 2015). While genetic and morphological factors are unchangeable, psychosocial, and biomechanical factors can be modified (Asghari et al., 2019). Choobineh et al. (2010) found that back pain is the most common problem for ORNs. Regarding working conditions, longer work- ing hours, frequent shift changes, working on off days, mandated working hours, and limited rest periods significantly increase ex- posure to physical risks (Trinkoff et al., 2006). Previous studies have measured the prevalence of work-related MSP among ORNs, but the impact of this pain on their daily work routines has not been analyzed (Abdollahi et al., 2020; Anderson & Oakman, 2016; Choobineh et al., 2010; Clari et al., 2019). There is limited data in the literature on whether the presence of MSP in any part of the body affects the daily work of ORNs. Determining the impact of occupational MSP on daily work life can help design necessary precautions and plan care routines. Therefore, this study aimed to identify work-related MSP among ORNs and its impact on their daily work routine.

Materials and Methods

Study Hypotheses H0 hypothesis: The descriptive characteristics of ORNs do not af- fect MSP. H1 hypothesis: The descriptive characteristics of ORNs affect MSP. Study Type Multicenter cross-sectional study. Universe and Sample of the Study Using logistic regression to predict MSP risk factors, the sam- ple size was determined using the G∗ Power 3.1.9.7 program (Uni- versity of Dusseldorf/Germany). Assuming a 2.1 odds ratio, 0.05 α error, 0.20 β error, and 80% power with a two-way hypothesis, the minimum number of participants needed was 100. Considering data loss, we included 105 participants. In determining the partici- pants of the study, a simple random sampling method was used to ensure that each ORN had an equal chance of participating in the research. The study involved 130 nurses from five state hospitals and one private hospital. A total of 105 nurses from these hospi- tals volunteered, meeting the criteria, between December 15, 2021, and February 15, 2022, constituting 80% of the study population. Sample Criteria Inclusion criteria 1) Working as a nurse in a private or public hospital. 2) Nurses who had been working in the operating room for the previous year according to the date of the study and volun- teered to participate. Exclusion criteria 1) Nurses who volunteer to participate in the study, but either choose not to answer survey questions or provide incomplete responses. 2) Nurses who had worked for less than a year. Data Collection Tools The data were collected using the "Descriptive Information Form," which included the information of the individuals, and the "Nordic Musculoskeletal Questionnaire." Section I Introductory Information Form: Introductory Informa- tion Form-15 questions covering age, gender, education, work style, hours, experience, role, standing time, breaks, height, weight, and BMI. Participants completed questionnaires

individually. Section II Nordic Musculoskeletal Questionnaire: The Nordic Mus- culoskeletal Questionnaire was used in the second part of the data collection to assess the nurses' views on musculoskeletal problems. The questionnaire was created by Dawson et al. (2009) to measure pain and activity avoidance in nine body regions. It evaluated lower back pain, neck, shoulder, and general musculoskeletal complaints using standardized questions. The questionnaire offered reliable information on disturbances in specific body areas e90 in the past 12 months and 7 days. Adapted into Turkish by Kahraman et al. (2016), it showed high internal consistency (Cronbach's alpha 0.896). In this study, Cronbach's alpha was 0.91. Permission to use the questionnaires was obtained. Collection of Study Data Pilot study: We conducted a pilot study involving 10 specialist nurses to ensure the clarity of the data collection form. No changes were needed, and thus pilot data were included. ORNs in the operating room were informed about the study and they signed a voluntary form. The data for the study was collected via face-to-face surveys. The researcher visited the op- erating rooms where the nurses worked before the start of their shifts to distribute the survey questionnaires. To avoid the impact of fatigue on their responses, the nurses were asked to answer the survey questions before the start of their shifts. After completing the surveys, the ORNs were instructed to hand the data collection forms back to the researcher. To ensure that the re- sponses were not influenced by others, the ORNs were asked to fill out the survey questions individually. ORNs completed the ques- tionnaire, taking 10-15 minutes for both parts. The study was re- ported using the STROBE checklist (EQUATOR Network, in press) (https://www.equator-network.org/). All outcomes The results of this study identified the presence of MSP in the past 12 months and the past 7 days in ORNs. Additionally, the study determined whether MSPs in ORNs affect their daily routine tasks. Variables influencing pain risk and factors affecting the in- ability to perform daily routines in ORNs were also identified. Exposures Physical load: Standing for long periods, lifting heavy loads, bending, and stretching can cause MSP. Ergonomic risks: Irregular placement of surgical equipment or inappropriate working heights can create unnecessary strain on the body. Repetitive movements: Holding surgical tools for extended peri- ods can lead to injuries, especially in the hands, wrists, and shoul- ders. Psychological stress: The fast pace and high stress of the operating room environment can exert extra pressure on nurses, leading to physical and emotional fatigue. Long working hours and insufficient rest: Extended working hours and lack of rest can cause fatigue, decreased attention, and reduced movement coordination. Operating room positions: Challenging positions during surgical procedures can lead to excessive strain on specific muscle groups and cause pain. Predictors Demographic information: Factors such as age, gender, job expe- rience, and education level. Previous musculoskeletal problems: Presence of prior muscu- loskeletal issues. Health behaviors: Frequency of exercise, posture habits, and other health-related lifestyle factors. Potential confounders General health status: Other health conditions or related health issues. Socioeconomic status: Income level, social support, and job security. Work environment: Stress levels at work, relationships with col- leagues, and management support. Effect modifiers Use of personal protective equipment: For example, proper footwear or supportive belts. Education and awareness programs: Training on musculoskeletal health and ergonomics. Lifestyle and personal habits: Smoking, alcohol use, and overall level of

physical activity. Ethical Aspect Approval was obtained from the Ethics Committee of Hasan Kalyoncu University (Approval No. 2021/033). Nurses provided written informed consent after being informed about the study (Emanuel et al., 2004). Withdrawal was allowed at any stage. The research adhered to international guidelines and the Declaration of Helsinki. In the study, nurses experiencing MSP might be more inclined to participate. To prevent sample selection bias, the research was planned as a cross-sectional study. To avoid measurement bias, the "Nordic Musculoskeletal Questionnaire," was utilized which has been used globally in numerous studies. To ensure that the nurses' workload during the day does not affect their responses to the sur- vey questions, they were asked to answer the survey questions in- dividually and before starting their shift. Statistical Analysis The dependent variables of the study are whether ORNs experi- enced MSP in the last 12 months and the last 7 days, as well as the effect of MSPs on their ability to perform daily routine tasks. The independent variables of the study included the ORNs' age, gen- der, education level, work timings in the operating room, partic- ipation in operations, BMI, years of nursing experience, years of experience in operating room nursing, daily standing time (hours), working time as a scrub nurse in the operating room (hours), and working time as a circulating nurse in the operating room. Surveys that were incompletely filled out were excluded from the sample and were not included in the study. Data were analyzed using SPSS software (version 20.0; IBM Inc., Canada). Discrete values are represented by numbers (n) and percentages (%), while continuous values are presented as mean ± standard deviation. The chi-square test compared cate- gorical variables. Logistic regression analyzed how ORN charac- teristics influenced work-related MSP risk. Significance was set at $p < .05$..

Results

Out of 315 students, 107 (34%) were male while 208 (66%) were female. The mean age of the participants was 21.1 (SD=2.65). Regarding residency 227 (72.1%) were non-boarder and 87 (27.6%) were boarders. Samples were taken from 1st year to Final year, with 63 samples from each class.

(Table 1) shows the frequency and percentages of all the variable's options.

Table 1: Demographic profile

Variable	Frequency	Percentage
Age		
15-20 years	111	35.2
21-25 years	203	64.4
26-30 years	1	0.3
Gender		
Male	107	34.0
Female	208	66.0

Year of Study		
1st Year	71	22.5
2nd Year	61	19.4
3rd Year	63	20.0
4th Year	68	21.6
Final Year	52	16.5
Residence		
Boarders	87	27.6
Non-Boarders	227	72.1
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4th Year	68	21.6
Final Year	52	16.5
Residence		

Table 2: Data analysis of demographics

Variable	**GHQ <24**	**GHQ >24**	**p-Value**	**Unadjusted odds ratio (CI=95%)**
Age				
Group 1 (15-20)	55 (40.4%)	81 (59.6%)	0.093	1.491
Group 2 (21+)*	56 (31%)	123 (68.7%)		
Gender				
Male	43 (40.2%)	64 (59.8%)	0.443	0.832
Female *	93 (44.7%)	115 (55.3%)		
Year of Study				
Clinical Years*	63 (35.2%)	116 (64.8%)	0.006	1.896
Basic Years	69 (50.7%)	67 (49.3%)		
Residence				
Boarders	30 (34.5%)	57 (65.5%)	0.060	0.612
Non-Boarders *	105 (46.2%)	122 (53.7%)		

(*represents the reference group of the variable)

Analysis showed that the knowledge of men regarding antenatal and post-natal needs of women was better in males who were highly educated (p= .04), living in urban areas (p= .02), had good monthly income (p= .04) and more children (p= .031**).**

The general mental health of the students was assessed using the General Health Questionnaire (GHQ). A significant difference was observed in the year of study (p=0.006), with 50.7% of individuals in basic years and 35.2% in clinical years having GHQ scores less than 24. In terms of residence, 34.5% of boarders and 46.2% of non-boarders had GHQ scores less than 24, but the difference was not statistically significant (p=0.060) (Table 2).

Younger students aged between 15-20 years are 1.5 times more likely to have a worse GHQ score, clinical year students are almost 89% more likely to have a worse GHQ score than basic year students, and non-boarders having a risk of 61.2% more chance of having a worse GHQ score.

Table 3: Basic statistical data of factors affecting mental health (FAMH)

Variable	**Frequency**	**Percentage**	**Variable**	**Frequency**	**Percentage**
FAMH1			**FAMH8**		
Single Family	250	79.4	Always, supported	219	69.5
Joint Family	55	17.5	Sometimes	82	26.0
Broken Family	10	3.2	Never supported	14	4.4
FAMH2			**FAMH9**		
Bad (1-3)	21	6.7	Always (social life)	76	24.1
Satisfactory (4-6)	176	55.9	Sometimes	176	55.9
Good (7-10)	118	37.5	Never (social life)	62	19.7
FAMH3			**FAMH10**		
Personal Interest	216	68.5	Always (sports)	42	13.3
Parent's Will	82	26.0	Sometimes	146	46.3
Peer Pressure	15	4.8	Never (sports)	127	40.3
FAMH4			**FAMH11**		
Always pressured	88	27.9	Yes, have addiction	26	8.3

Sometimes	188	59.7	No addiction habit	289	91.7
Never pressured	39	12.4			
FAMH5			**FAMH12**		
Always fearing	87	27.6	Yes, financial issues	41	13.0
Sometimes	154	48.9	No financial issues	271	86.0
Never fearing	74	23.5			
FAMH6			**FAMH13**		
Yes, preparing	63	20.0	Yes, physical health	74	23.5
No, not preparing	127	40.3	No physical ailment	241	76.5
Not Sure	49	15.6			
FAMH7			**FAMH14**		
Always support	47	14.9	Yes, chronic illness	59	18.7
Sometimes	141	44.8	No chronic illness	254	80.6
Never supported	127	40.3			

Table 3 shows the individual demographic data of each factor affecting mental health. Most students live in single unit families (FAMH 1), have a satisfactory outlook on their appearance (55.9%), studying MBBS in their own interest (68.5%), feel pressurized by medical education (59.7%), have a fear of failure of exams (27.6% + 48.9%), are not supported by their faculty (44.8% + 40.3%) and have a good social life.

Table 4: Statistical analysis of FAMH

Variable	GHQ <24	GHQ >24	S.D	p-Value	Exp (B) (CI=95%)
FAMH1	Functional Family: 135*, Non-Functional Family: 1	Functional Family: 170*, Non-Functional Family: 9	1.060 1.079	.064	7.147
FAMH2	Bad looks: 69*, Good looks: 67	Bad looks: 128*, Good looks: 51	0.238 0.352	<.001	.410
FAMH3	Personal Interest: 106*, Other's Interest: 29	Personal Interest: 110*, Other's Interest: 68	0.260 0.351	.002	2.260
FAMH4	Yes (Always/Sometimes): 114*, No: 22	Yes (Always/Sometimes): 162*, No: 17	0.345 0.405	.078	.544
FAMH5	Yes (Always/Sometimes): 93*, No: 43	Yes (Always/Sometimes): 148*, No: 31	0.270 0.354	.003	.453
FAMH6	Preparing: 21,	Preparing: 42,	0.307	.096	.600

	Not Preparing: 80*	Not Preparing: 96*	0.556		
FAMH7	Supported: 95*,	Supported: 93*,	0.239	.001	2.143
	Not supported: 41	Not supported: 86	0.348		
FAMH8	Supported: 131*,	Supported: 170*,	0.570	.566	1.387
	Not supported: 5	Not supported: 9	0.604		
FAMH9	Engaged in Social	Engaged in Social	0.303	.030	1.930
	Activities: 116*,	Activities: 136*,			
	Not engaged: 19	Not engaged: 43	0.374		
FAMH10	Engaged in sports: 95*,	Engaged in sports: 93*,	0.239	.001	2.143
	Not engaged: 41	Not engaged: 86	0.348		
FAMH11	Yes: 13, No: 123*	Yes: 13, No: 166*	0.410	.465	1.350
			0.793		
FAMH12	Yes: 8, No: 127*	Yes: 33, No: 144*	0.412	.001	.275
			0.798		
FAMH13	Yes: 16, No: 120*	Yes: 58, No: 121*	0.310	<.001	.278
			0.579		
FAMH14	Yes: 12, No: 122*	Yes: 47, No: 132*	0.347	<.001	.276
			0.659		

(*represents the reference variable in FAMH)

Mann Whitney U test and Kruskal Wallis H test paint a similar picture as in (Table 4).

FAMH1, FAMH2, FAMH3, FAMH5, FAMH7, FAMH9, FAMH10, FAMH12, FAMH13, and FAMH14 are all statistically significant factors affecting mental health. Tukey's post hoc analysis of these factors reaffirms the results with a p-value varying between 0.001 and 0.035.

Table 5: Mann Whitney U test and Kruskal Wallis H test on FAMH

	MANN WHITNEY U TEST			**KRUSKAL WALLIS H TEST**
Variable	**Mean rank**	**Difference in mean rank**	**p-value**	**p-value**
FAMH1: Type of family				
Functional family	155.41	81.444	0.005	0.011
Non-functional family	236.85			
FAMH2: Person looks				

Bad looks	172.52	38.76	<0.001	<0.001
Good looks	133.76			
FAMH3: Reason to apt medical studies				
Personal interest	144.82	39.29	<0.001	<0.001
Others interest	184.11			
FAMH4: Feel pressurized by medical studies				
Yes	160.44	19.72	0.205	<0.001
No	140.72			
FAMH5: Fear of failure in exam				
Yes	169.20	47.69	<0.001	<0.001
No	121.51			
FAMH6: Preparing for any foreign test				
Preparing	131.14	15.13	0.136	0.432
Not preparing	116.01			
FAMH7: Supported by faculty				
Supported	142.49	38.47	<0.001	<0.001
Not supported	180.96			
FAMH8: Supported by family				
Supported	156.42	35.51	0.154	<0.001
Not supported	191.93			
FAMH9: Engage in social activity				
Engaged	152.14	27.13	0.035	0.001
Not engaged	179.27			
FAMH10: Engage in sport				
Engaged	145.37	31.32	0.003	<0.001
Not engaged	176.69			
FAMH11: Addiction habit				
Yes	143.00	16.35	0.380	-
No	159.35			
FAMH12: Financial issue				

Yes	199.60	49.62	0.001	-
No	149.98			
FAMH13: Physical health issue				
Yes	204.52	60.8	<0.001	-
No	143.72			
FAMH14: Physical disability/chronic illness				
Yes	201.47	54.8	<0.001	-
No	146.67			

In the Mann Whitney U test and Kruskal Wallis H test, FAMH1, FAMH2, FAMH3, FAMH5, FAMH7, FAMH9, FAMH10, FAMH12, FAMH13, and FAMH14, show p-values less than 0.05, and thus show significance.

Discussion

In this cross-sectional study, we studied the mental health of medical students studying at Rawalpindi Medical University. As expected, our study shows the mental health relationship with general demographic factors and factors affecting mental health. These factors encompass family dynamics, personal interests, support systems, engagement in social activities, and various other aspects of students' lives. It is important to note that these factors can interact in complex ways and dynamically influence mental health.

The global prevalence of depression in undergraduate students was found to be at 33% of the population.[16] Depression had a pooled prevalence of 11%, with South Asia and Middle East having an incidence of 30% or higher, which is alarming in its own right.[17-21] This statement agrees with the systemic reviews found in the references[4,22] which studied the prevalence of depression in undergraduate medical students and their mental health issues. In Pakistan, the incidence of depression is a staggering 70% which garners immediate attention.[17]

Our study is a one-of-a-kind study that was conducted on the students at Rawalpindi Medical University, which assessed not only the mental health status of medical students, but also the factors that affect their mental health. Out of the 315 participants in the research study, over 58.8% had scores over 24 in the GHQ-28 and were labeled as unhealthy by the scoring method. This can amount to disastrous effects later if left unchecked. Such a high score may be due to mental distress owing to academic stress, fear of failure to perform adequately in exams due to the very high frequency of exams, personal issues, financial issues, lack of support from family, lack of social activities etc. This score is higher than a study conducted in Iran (54.4%), and much higher than that same study conducted in Türkiye (48%) and Nepal (20.8%) with students employing various coping strategies to tackle mental health issues.[21,22] The

prevalence of depression, suicidal ideation, and anxiety is also dangerously high especially post COVID-19 era, as studied in this meta-analysis in China.[25] It was also discovered that clinical year students, 3rd year to final year, are at a much higher risk and have higher scores than basic year students. This can also be due to the same reason that academic pressure increases significantly in these years. Measures need to be taken to curb this rise in ailing mental health status, lest be too late.

Some notable findings include the influence of family dynamics on mental health (FAMH1), where individuals from functional families appeared to have better mental health scores, albeit not statistically significant. Similarly, personal interest in choosing their field of study (FAMH3) appears to have a positive impact on mental health. This was also found to be consistent with the findings in the research conducted by Saman Farahangiz et al.[11]

However, other factors such as appearance (FAMH2) and engagement in sports (FAMH10) showed statistically significant associations with mental health. Additionally, the Mann-Whitney U test and Kruskal-Wallis H test further validate the significance of these factors in shaping mental health outcomes. Factors like personal interest in the field of study (FAMH3) and having support (FAMH7) were associated with better mental health scores, while factors like appearance (FAMH2) and engagement in sports (FAMH10) also played a role. This trend clearly shows the need for much more aggressive, potent, and holistic support to be provided to future healthcare workers to provide them with the best health in their student years so that they can perform best in society.

The matter of physical outlook is affecting mental health significantly and living under the fear of failure has a progressive and significant effect on students' health not only affecting the motivational drive toward their educational and clinical performance. However, other factors such as appearance (FAMH2) and engagement in sports (FAMH10) showed statistically significant associations with mental health. These findings point towards the need for a holistic approach to support students. As discussed in the research, fear of failure is conceptualized as an avoidance motivation when individuals predict the aversive consequences of failing.[23]

According to the results, discussions, and analysis, the mental health of students at Rawalpindi Medical University is greatly affected. It is ascertained from the FAMH table (refer to annexure A) and clinical years have a higher risk of mental health disorders (where clinical years are the ones when the students face direct university policy and clinical exposure). These findings suggest that environmental, insidious, personal, and individual factors affect mental health.

Further recommendations are on specific mental health issues that should be evaluated so that specific mental health issues can be identified more precisely. Gender, age, and residence can be further studied in detail to understand these factors more precisely. Factors that affect mental health need to be further investigated and suggestions, policies, and educational system overall to be structured according to the research to maximize student mental well-being, so that better healthcare professionals can be trained.

Conclusion

The student's mental health was affected by the year of study with the clinical year being affected about 1.89 times more than the basic year. Moreover, aesthetic perception of oneself (FAMH1), personal interest (FAMH3), consistent engagement in extra-curricular activities (FAMH4 and FAMH5), support from family and university faculty (FAMH9), and engagement in sports (FAMH10) affect mental health. Proper measures should be taken to improve the mental health of the students of RMU which includes counseling of the students and arranging workshops to teach them how to cope with stress.

In conclusion, high prevalence of mental health concerns among medical students highlight the urgent and dire need for institutional reforms and restructuring to ensure a safe doctor and professional development

References

1. World Health Organization. Mental health [Internet]. Geneva: World Health Organization; [cited 2023 Sep 24]. Available from: https://www.who.int/data/gho/data/themes/theme-details/GHO/mental-health
2. Freeman M. The World Mental Health Report: transforming mental health for all. World Psychiatry. 2022;21(3):391–5.
3. World Health Organization. The WHO special initiative for mental health (2019–2023): universal health coverage for mental health. Geneva: World Health Organization; 2019.
4. Halperin SJ, Henderson MN, Prenner S, Grauer JN. Prevalence of anxiety and depression among medical students during the Covid-19 pandemic: a cross-sectional study. Journal of medical education and curricular development. 2021 Feb;8:2382120521991150.
5. Rizvi F, Qureshi A, Rajput A, Afzal M. Prevalence of depression, anxiety, and stress (by DASS scoring system) among medical students in Islamabad, Pakistan. Br J Med Med Res. 2015;8(69–75).
6. Farrukh N, Kazmi H, Qureshi Z, Wasiq D, Sajid D, Butt D. Depression among private undergraduate medical students. Prof Med J. 2016;23(7):858–63.
7. El-Gabry DA, Okasha T, Shaker N, Elserafy D, Yehia M, Aziz KA, et al. Mental health and wellbeing among Egyptian medical students: a cross-sectional study. Middle East Curr Psychiatry. 2022;29(1):25.
8. Wickramasinghe DP, Samarasekera DN. Depression and stressful life events among medical students during undergraduate careers: findings from South Asia. Asia Pac Scholar. 2019;4(2):42–7.
9. Jamil H, Alakkari M, Al-Mahini MS, Alsayid M, Al Jandali O. Impact of anxiety and depression on academic performance among medical students in Syria. Avicenna J Med. 2022;12(3):111–9.
10. Maser B, Danilewitz M, Guerin E, Findlay L, Frank E. Medical student psychological distress relative to the general population: a Canadian cross-sectional survey. Acad Med. 2019;94(11):1781–91.
11. Farahangiz S, Mohebpour F, Salehi A. Mental health among Iranian medical students: a cross-sectional study. Int J Health Sci. 2016;10(1):49–55.
12. Pokhrel NB, Khadayat R, Tulachan P. Depression, anxiety, and burnout among medical students and residents in Nepal: a cross-sectional study. BMC Psychiatry. 2020;20(1):298.
13. Khan MS, Mahmood S, Badshah A, Ali SU, Jamal Y. Prevalence of depression, anxiety and their associated factors among medical students in Karachi, Pakistan. J Pak Med Assoc. 2006;56(12):583–7.
14. Cap DM, Nguyen AQ, Nguyen TT. Mental Health of Medical Students After Combating the COVID-19 Epidemic: A Cross-sectional Study in Vietnam. Journal of Preventive Medicine and Public Health. 2024 May 22;57(4):347.
15. Silva V, Costa P, Pereira I, Faria R, Salgueira AP, Costa MJ, et al. Depression in medical students: insights from a longitudinal study. BMC Med Educ. 2017;17(1):184.
16. Sarokhani D, Delpisheh A, Veisani Y, Sarokhani MT, Manesh RE, Sayehmiri K. Prevalence of depression among university students: a systematic review and meta-analysis. Depress Res Treat. 2013;2013:1–7.
17. Roh MS, Jeon HJ, Kim H, Cho HJ, Han SK, Hahm BJ. Factors influencing treatment for depression among medical students: a nationwide sample in South Korea. Med Educ. 2009;43(2):133–9.

18. Taha AZ, Sabra AA. Perceived stresses among male students in Saudi Arabia: A comparative study. J Am Sci. 2012;8(6):291–8.
19. Basnet B, Jaiswal M, Adhikari B, Shyangwa PM. Depression among undergraduate medical students. Kathmandu Univ Med J. 2012;10(3):56–9.
20. Hope V, Henderson M. Medical student depression, anxiety, and distress outside North America: a systematic review. Med Educ. 2014;48(10):963–79.
21. Aktekin M, Karaman T, Senol YY, Erdem S, Erengin H, Akaydin M. Anxiety, depression, and stressful life events among medical students: a prospective study in Turkey. Med Educ. 2001;35:12–7.
22. Sattar K, Yusoff MS, Arifin WN, Yasin MA, Nor MZ. Effective coping strategies utilised by medical students for mental health disorders during undergraduate medical education-a scoping review. BMC medical education. 2022 Feb 23;22(1):121.
23. Fryt J, Duell N, Szczygieł M. Psychological profiles associated with positive and negative risk-taking in adults. Current Psychology. 2024 Apr;43(14):12744-53.
24. Eley DS, Slavin SJ. Medical student mental health–the intransigent global dilemma: Contributors and potential solutions. Medical Teacher. 2024 Feb 1;46(2):156-61.
25. Zeng W, Chen R, Wang X, Zhang Q, Deng W. Prevalence of mental health problems among medical students in China: A meta-analysis. Medicine. 2019 May 1;98(18):e15337