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CORRELATION BETWEEN DEPRESSION AND MUSCULOSKELETAL DISORDERS AMONG MEDICAL STUDENTS-TAIF UNIVERSITY

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Abstract:

***Background**: Depression is one of the most common disease which affect population and according to WHO by 2020, depression would be the second-most prevalent condition worldwide .the rates of depression and suicide become very high in medical students and these rate continue to elevate when these students become physicians. depression lead the Medical students less productivity, reduced quality of life, learning difficulties and may negatively affect patient care. Musculoskeletal disorders (MSD) is one of the most common global health problems. The International Labor Office (ILO) reported that MSD has led to increased health problems in the working population. This problem has been a rapidly increasing issue for the adult population. Strong association of workplace psychosocial factors with MSD. This relationship is due to the stressful working condition, including very large classes, a lack of instructive assets. So Depressed patients often complain about MSD and depression, patients with MSD have reported even higher rates of depression, as much as 30 to 54% . the incidence of MSD in school teachers and students has been reported: for example, from a low of 17.7% in Japan, to numbers as high as 53.3% in Brazil, 59.2% in China and 61% in the United States. **Methodology**: cross-sectional study to assess the prevalence of depression and it is correlation to MSD Among Medical students, At Taif University, kingdom of Saudi Arabia in 2019, by using a pre-designed questionnaire And will be analyzed by the statistical package for the social science (SPSS). **objectives:** to detect the prevalence of depression among the studied group, and it's correlation with MSD and the significance of depression as a risk factor for it.**Results;** 30% of medical students suffered from depression , only 5% of students had severe depression , 10% suffered from moderate depression, and 15% suffered from mild depression. And there is statistical significance relationship between all level of depression and MSD including Pain during the last 12 months, Pain that interferes with work and study and also Pain during the last 7 days , P-value in all of them less than 0.05*.*

***KEY WORDS** : Depression - Musculoskeletal disorders – Medical students – Taif University*

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INTRODUCTION:

Depression is one of the most common disease which affect population and according to WHO by 2020, depression would be the second-most prevalent condition worldwide.[1] the rates of depression and suicide become very high in medical students and these rate continue to elevate when these students become physicians.[2] depression lead the Medical students less productivity, reduced quality of life, learning difficulties and may negatively affect patient care.and we consider them one of the most human resource for our future [3,4] in comparing with the other population , medical students suffering from Higher academic working load [5], lack of sleep[6] , exposure to patients' suffering and death,[7] financial concerns,[5] and the hidden curriculum of cynicism[8]. it is important for medical schools to evaluate their students' depression and to encourage depressed students to receive proper treatment[9] Lower prevalence of depression in Asian countries than in Western countries has been consistently reported by previous studies.[9,10]. Researches found that Gender differences in depression both practicing and newly qualified physicians, studies indicating that depression is more common among women than men.[11] In united State A study of US residents found that 45% of women compared with 32% of men reported 4 or 5 depressive symptoms [12]. A cross-sectional study conducted in Riyadh reported that 57% [13], of the medical students have psychological stress .The corresponding rates among medical students in Malaysia & Thailand were 41.9% [14] & 61.4% [15] respectively. While the prevalence of depression among medical students in Sweden 2011 was reported 12.9% prevalence of depression among medical students [16], Another comparative study done among male medical students in both Mansoura University, Egypt & King Faisal University, Riyadh, Saudi Arabia concluded that anxiety & depression represented a prevalent problem in both countries [17]. Some studies suggest that most stress occurs during the transition from preclinical to clinical training[18], Others suggest higher levels of stress in first-year medical students due to the tremendous change in lifestyle [18,19], or in the clinical year [20].

Musculoskeletal disorders (MSD) is one of the most common global health problem. The International Labor Office (ILO) [21] reported that MSD has lead to increased health problems in the working population. This problem have been a rapidly increasing issue for the adult population[22]. A lot of studies examined the causes of MSD and proposed strategies to control them there are many causes of MSD is such as repetitive movements, extreme positions, or static positions and working in stressful situations, Although this, MSD is still the most prevalent and the most common cause of disability among teachers worldwide. [23, 24, 25] .

There are many profession were related to MSD , teaching is one occupation that has been shown to suffer from MSD [23]. In particular, a large number of studies have shown that the prevalence of MSD in school students and teachers ranges from 12 to 84% [26] , There is a study in England reported that 62% of dentists reported at least one musculoskeletal complaint, out of them 32% seek medical care. [27]. There are also many studies that report a Strong association of workplace psychosocial factors with MSD [28–29]. This relationship is due to the stressful working condition of teachers, including very large classes, a lack of instructive assets, and low pay for their work[30,31].so Depressed patients often complain about MSD and depression , patients with MSD have reported even higher rates of depression, as much as 30 to 54% [32]. The co-occurrence between MSD and depression shows that individuals suffering from pain are also at a greater risk for depression [33]. the incidence of MSD in school teachers has been reported: for example, from a low of 17.7% in Japan, to numbers as high as 53.3% in Brazil, 59.2% in China and 61% in the United States[23]. Other studies have also found school teachers to be an occupational group having a particularly high incidence of MSD [17], reporting rates of between 40 and 95% [34]. Teachers are not only engaged in pedagogical work, but also must prepare lessons, evaluate students, and assist with sports and other extracurricular activities. Because of this wide range of duties and activities, teachers may be particularly vulnerable to both physical and emotional issues [35].

METHODOLOGY:

Study design

This study is a cross-sectional study design.

Study setting

This study was been conducted at College of Medicine, Taif University in Taif city, which located in the Mecca Province of Saudi Arabia at the West of Saudi Arabia in an elevation of 1700 meters on the slopes of the Al-Sarawat Mountains. It hada population of 1,281,613 (2011 census).[36] Taif University is a large-sized and a public university consist of thirteen colleges in which 13764 have graduated in 2018, The study will be conducted at all academic level (male and female sections).

Study population:

Medical students (547 males and 558 females) in

college of Medicine , Taif University were enrolled in this study throughout the academic year 1440/1441 H.

Sampling:
Medical students (547 males and 558 females) enrolled throughout the academic year 1440/1441 H at Taif University had been invited to participate in the study by filling in the study questionnaire.

Study tool:
A valid and reliable questionnaire that comprised two sections was utilized. the first is Patient Health Questionnaire (PHQ-9) to detect the prevalence of depression among the studied group [37] , and the second is Standardized Nordic questionnaires [NMQ]for the analysis of musculoskeletal symptoms[38].

We had conducted a pilot study before the beginning in order to test the questionnaire to detect any difficulties. The selected grades had visited by the research team to clarify the purposes of the study and Permission to use the questionnaire had been obtained from the corresponding author through phone communication.

Data collection technique:
The researcher was distribute the questionnaire during the studying hours; care had been taken to not disturb the students. A help in collecting data from female site had been requested by a trained student. The researcher had been available to clarify any issue and the questionnaires had been collected in the same day. The data had been verified by hand then had been coded and entered to a personal computer.

Pilot study:
A pilot study had been conducted on 20 students (10 males and 10 females) The results of this pilot study help to set the study in their final applicable forms. The results had been added to the final report provided that they are not different significantly from final results

Data analysis
The Statistical Package for Social Sciences (SPSS version 22) had been used for data entry and statistical analysis. The overall awareness score had been computed as the sum of correct responses to the 30 statements. The descriptive statistics had been calculated. Normal distribution of the date will be tested and accordingly analytical statistical tests had been utilized (parametric or non-parametric). Statistically significant differences had been considered at $p<0.05$.

Administrative considerations:
All the necessary official permissions had been fully secured before data collection. Collected data had been kept strictly confidential and had been used only for research purposes.

Ethical considerations:
Before start of the study, the researcher had fulfill all the necessary official approvals by the pertinent committees. Prior to data collection, all participants had been clearly and briefly informed about the objectives of this study. All participants had been assured regarding the full confidentiality of any collected data. Students had been also convinced by the researcher that this had been not a test for which some was succeed and others will fail.

Budget:
This study will funded by the researcher.

RESULTS:

Table 1. sociodemographic data

Age mean	21	
Height mean	162.17	
Weight mean	68.25	
Gender	Number	Percent
Male	455	62.8
Female	269	37.1
Academic year		
First year	129	17.8
Second year	102	14
Third year	98	13.5
Forth year	144	19.8
Fifth year	132	18.2
Six year	119	16.4
BMI		
Under weight	73	10
Normal	289	39.9
Overweight	175	24.1
Obesity	187	25.8
Chronic diseases		
Yes	79	10.9
No	645	89

Table 2. Psychological symptoms and score of depression among medical students

Loss of interest	Number	Percent
Not at all	308	42.5
Several days	166	22.9
More than Half days	97	13.3
Everyday	154	20
Sadness		
Not at all	134	18.5
Several days	346	47.7
More than Half days	138	19.0
Everyday	103	14.2
Sleep disturbance		
Not at all	177	24.4
Several days	361	49.8
More than Half days	118	16.2
Everyday	68	9.3
Tiredness		
Not at all	269	37.1
Several days	112	15.4
More than Half days	188	25.9
Everyday	155	21.4
Loss of concentration		
Not at all	133	18.3
Several days	387	53.4
More than Half days	114	15.7
Everyday	90	12.4
Loss of appetite		
Not at all	389	53.7

Several days	93	12.8
More than Half days	143	19.7
Everyday	99	13.6
Loss of confidence		
Not at all	291	40.1
Several days	198	27.3
More than Half days	130	17.9
Everyday	104	14.3
Slow movements		
Not at all	305	42.1
Several days	184	25.4
More than Half days	137	18.9
Everyday	98	13.5
Suicide		
Not at all	498	68.7
Several days	138	19
More than Half days	85	11.7
Everyday	3	0.41
Score of depression	Number	Percent
Normal	508	70.1
Mild depression	107	14.7
Moderate depression	76	10.4
Severe depression	33	4.5

Figure 1 : The percentage of depression among medical students

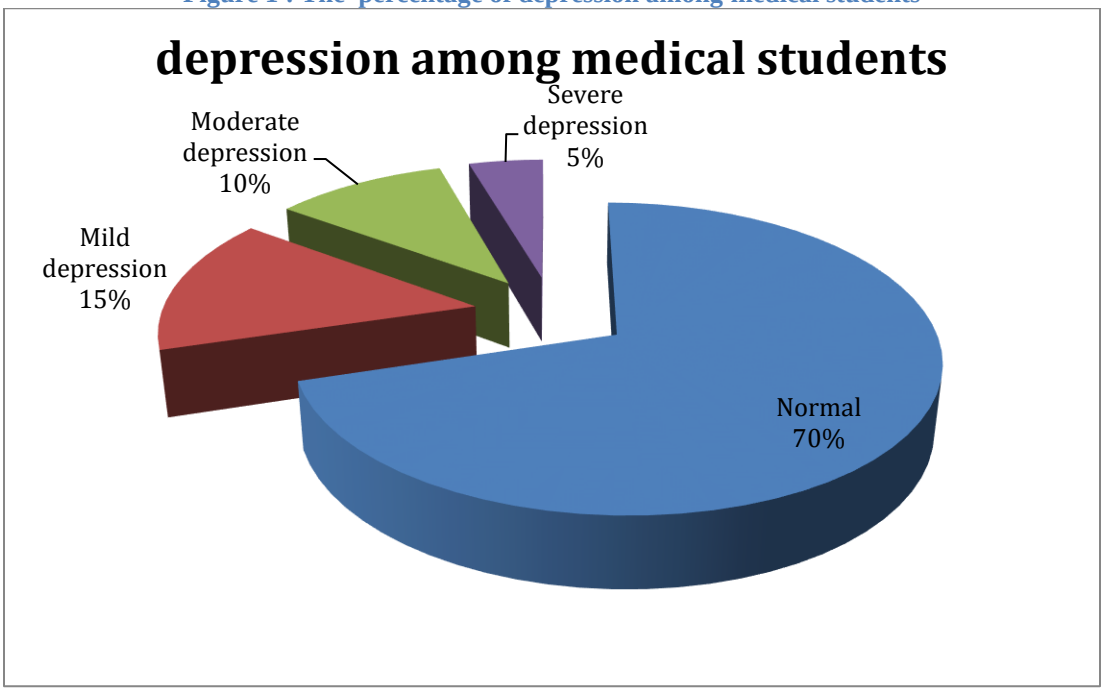

Table 3. Musculoskeletal disorders among depressed students

Variable	N= 216	
Pain during the last 12 months	Frequency	Percent
Neck	26	12
Shoulder	18	8.3
Elbows	17	7.8
Wrists / hands	16	7.4
Upper back	26	12
Lower back	39	18
Hips / thighs	21	9.7
Knees	27	12.5
Ankles / feet	21	9.7
Pain interferes with work	Frequency	Percent
No pain interfere with work	98	45.3
Neck	18	8.3
Shoulder	8	3.7
Elbows	8	3.7
Wrists / hands	13	6
Upper back	19	8.7
Lower back	11	5
Hips / thighs	12	5.5
Knees	15	6.9
Ankles / feet	14	6.4
Pain during the last 7 days	Frequency	Percent
No pain in the past 7 days	114	52.7
Neck	8	3.7
Shoulder	8	3.7
Elbows	7	3.2
Wrists / hands	9	4.1
Upper back	16	7.4
Lower back	21	9.7
Hips / thighs	12	5.5
Knees	11	5
Ankles / feet	10	4.6

Table 4. Associations between Musculoskeletal disorders and level of depression among medical students

Level of depression	**Pain during the last 12 months**		**Chi-square**	**P-value**
	Yes	No		
Mild	54(72.3%)	52(27.7%)	34.236	<0.05*
Moderate	51(37.9%)	25(62.1%)		
Sever	24(82.9%)	9(17.1%)		
	Pain interferes with work			
	Yes	No		
Mild	23(61.8%)	84(38.2%)	26.782	<0.05*
Moderate	17(47.5%)	59(52.5%)		
Sever	11(84.6%)	22(15.4%)		
	Pain during the last 7 days			
	Yes	No		
Mild	26(69.1%)	81(30.9%)	78.167	<0.05*
Moderate	14(56.9%)	62(34.1%)		
Sever	13(79.2%)	20(20.8%)		

DISCUSSION:

Our study assess the prevalence of depression in 725 medical students, and also describe the correlation between the depression and musculoskeletal disorders at Taif , Saudi Arabia , that may interfere with quality of life of these medical students. The results of this study indicate that medical students in Taif , Saudi Arabia do experience mild levels of depression as about 30% of these students suffered from depression , only 5% of students had severe depression , 10% suffered from moderate depression, and 15% suffered from mild depression .

Direct comparison of the levels of depression, in our sample with non-university Saudi populations is difficult due to a lack of published studies in the area; however, our sample did have mild levels of depression compared with Western general populations of the same age. For example, the levels of depression, in our population were almost same the levels found in an Australian population of 18 to 24 year olds

(Crawford et al. 2011)[39]. However, our prevalence seemed higher than another Saudi study on female medical students that found depression, using DASS, to be 19 %(Balaha et al. 2010)[40]. This difference may be because this study exclude the students that have medical conditions.

And when we Compare our results with studies of Saudi medical students using different scale revealed that the same percentage of depression (Ibrahim et al. 2013 [41], but this study were conducting in only female medical students in King Abdulaziz University, Jeddah, Saudi Arabia

Globally, we also investigate the percentage of depression at the level of undergraduates medical student we show in our study slightly higher prevalence of depression more than in medical students in Cambridge (UK) medical school as the Prevalence of depression was varied from 2.2% to 14.8%.(Thelma A Quince et al. 2012)[42].

Prevalence of depression using a similar score among comparable groups has been found to vary from 9.5% to 29% for medical students, [43] and from 3.8% to 18% for nonmedical undergraduates [44].

In other hand , our study correlate between the depression and musculoskeletal disorders at the level of medical students, and we found that is statistical significance relationship between all level of depression and Pain during the last 12 months, Pain that interferes with work and study and also Pain during the last 7 days , P-value in all of them less than 0.05*.

Many studies have been done in the past years to prove the relationship between, psychosocial factors at work and MSD, However, there have been many conflicting results. one systematic review study disagreed in its conclusion regarding the contribution of psychosocial factors and MSD, (Hartvigsen J, Lings S, Leboeuf-Yde C, Bakketeig et al 2014)[45]. In addition, other studies found those psychosocial factors in the workplace related to the musculoskeletal symptoms, especially in the body part of lower back as well as neck (Hoogendoorn WE, van Poppel MN et al 2000)[46].

There are lake of studies that investigate the correlation between depression and musculoskeletal disorders in Saudi Arabia, but globally we found in in Kuala Lumpur that depression was positively related to musculoskeletal disorder ($r = .30$, $p < .01$). and , depression appeared to have a partially mediating effect on the relationship between psychosocial factors and MSD (Yi Ming Ng* , Peter Voo and Ismail Maakip et al 2019)[47]

CONCLUSION:

The prevalence of depression is increasing among medical students. and there is a positively relationship between all level of depression and musculoskeletal disorders Therefore, further evaluation is needed.

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