



Prevalence of Low Back Pain and its Impact on Quality of Life among Taif University Students

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Abstract

Background: Lower back pain (LBP) is associated with increased pain intensity, physical and psychological disability, and increased dependence on pain medications causing adverse effects on the day-to-day quality of life (QOL). The study aimed to assess the prevalence of LBP among Taif University students and its impact on quality of life. **Methods:** A pretested self-administered questionnaire was distributed randomly and electronically to all students who gave consent to participate. The questionnaire was divided into three parts. The first part included demographic details; the second part assessed the prevalence of Low back pain and associated data that was recorded using the LBP section of Standardized Nordic Musculoskeletal Questionnaire (SNMA); the third part consisted of the RAND 36-Item Short-Form Health Survey (SF-36) for assessing the quality of life. **Result:** In our study majority of the participants were females (87.3%), and 55.3% belonged to the 20-25 years age group. The fixed orthodontic related history showed 59.8% had undergone the treatment for 1 to 3 years and 31.6% of the participants reported that they had removed the fixed braces for more than five years. Among these participants, 89.5% (n=34) reported that the fascia (space) closed between the upper frontal teeth after Frenectomy, and 65.8% (n=25) agreed that spaced between the two upper front teeth still closed after removing the retainer. **Conclusion:** The lifetime prevalence, annual prevalence, and point prevalence of LBP were found to be 57.9%, 73.1%, and 47.1%, respectively. The point prevalence was statistically higher among female students than male students (p=0.003). There were statistically significant differences seen in lifetime and point prevalence of LBP between different colleges. A linear regression model showed that the annual prevalence of LBP had a significant impact on the students' quality of life.

Keywords: Lower Back Pain, Quality of Life, Compliance, Musculoskeletal.

Introduction

Low back pain (LBP) affects 85% of the world's population and the third most frequent reason for a physician office visit, and the fourth most common diagnosis associated with surgical procedures. Low back pain is a symptom of a variety of illnesses [1]. Depression is a common finding with LBP [2]. LBP is associated with increased pain intensity, physical and psychological disability, and increased dependence on pain medications [3,4]. Low back pain is the common cause of activity limitation, and the second most frequent reason for a physician office visit worldwide [5]. LBP is the leading of socioeconomic burden on individuals, families, communities, industry and government, Aside from prevalence and cost, the effect of LBP on the workplace is substantial. Approximately 149 million workdays per year are lost as a result of LBP [6-8]. Previous studies found a higher level of pain severity and/or disability to be related to higher costs and a lower health-related quality of life [9-11]. Impairments to sleep are commonly

reported in individuals with LBP, with a 65% decrease in sleep quality [12].

A study conducted on three thousand high school students found 41% has low back pain and 65.0% were sleep-deprived concerning academic pressure [13].

A prospective study among 684 university students found a one-year incidence of low back pain to be 31% which had an impact on their quality of life, work, and socioeconomics [14].

A Poland study conducted on 1321 universities students found 43.4% reported mild, and more than 20% reported severe low back pain. About 60% found difficulty with long sitting and the other 50% with long-standing. On the other hand over 20% expressed limitation and 4.4% had to stop their physical activity due to low back pain [15].

A study done in Saudi Arabia showed a high prevalence of musculoskeletal pain among medical students particularly in relation to those with a history of depression, trauma, or psychosomatic symptoms [16].

A Japanese Cohort study suggests exposure to stressful life events may be associated with low back pain which had an impact on daily life [17].

A study on 1163 health sciences students in Saudi Arabia found the Lifetime prevalence of low back pain was 56.6%, with 90.3% reported minimal disability [18].

A study was made on 1800 medical French students with a mean age of 23 years old showed 68.9% prevalence of LBP which had a severe repercussion on the students work, quality of sleep, and their personal life [19].

A study done on 640 medical students of Taif University reported 33.3% of low back pain, with the main risk factors were being a 2nd-year medical student, female gender, and high working hours and there was no significant association of psychological stress to low back pain [20].

We didn't see a study interface low back pain with its impact on quality of life in university students of Saudi Arabia. We aimed to find the prevalence of low back pain and its impact on quality of life among students of Taif University in relation to different specialties

Subjects and Methods

Study design, time frame and setting: Our study was conducted at Taif city in KSA between 7th November 2020 to 30 March, 2021. A cross-sectional design was used. Study population and Sampling specifications: a Sample size calculator website (Rasoft) was used with a margin of error of 5% confidence level of 95%, population size of 42765. The recommended sample size was 381 students across the university and our study was concluding 401 participants. The study included both male and female of Taif University students, who were 18 years of age and above and accepted to take part in the study the consent was taken electronically.

Tools of data collection: A self administered questionnaire was done, although Due to covid-19 pandemic the questionnaires distributed randomly and electronically either through E-mail or social media applications or both. The questionnaire was divided into 3 parts. The first part included demographic questions regarding age, sex, and name of specialty. The second part included Low back pain section of Standardized Nordic Musculoskeletal Questionnaire (SNMA) used to evaluate recent occurrence, pain experienced within previous year, and over lifetime, pain influence on Occupation, physical activity, pain causes hospital visit or conducted treatment, which has been proven its reliability and validity [21]. Third part included questions to assess quality of life using the reliable and valid Arabic version of 36-Item Short Form Health Survey (SF-36), It consists of 36 items in 8 domains that assess the patient's physical and mental status [22].

Statistical analyses and sample size calculation:

Statistical analysis and data management: All the data received from the survey were transferred into the MS Excel working sheet and then was analyzed using a Statistical Package for Social Sciences (SPSS) Ver.20. Descriptive statistics using frequencies and percentages were used to present categorical variables. The mean differences in scores for each domain in 36-Item Short Form Survey (SF-36) between concerned categorical variables were compared using Student's 't' test and/or Analysis of Variance (ANOVA). Any possible association between categorical variables was analyzed using Pearson's Chi-square test. A significance value (p) less than 0.05 were considered statistically significant.

Ethical considerations

All participants written consents from their parents and willing to be interviewed and examined if they agree or not to take part in the study. Only those who agreed to participate were included. Before conducting any study-related procedures, ethical approval was obtained from Research Ethics Committee at Taif University, Saudi Arabia.

Results

Our study assessed the prevalence of low back pain and its impact on Taif University students' quality of life in different specialties. The prevalence of pain was evaluated using the Low back pain section of the Standardized Nordic Musculoskeletal Questionnaire (SNMA) and the health-related Quality of life among cardiovascular patients during the COVID-19 pandemic using the Arabic version of the RAND 36-Item Short Form Survey. The study included 401 participants who gave consent to participate that had 47.1% females, and 52.9% males from different institutions under Taif University. The sociodemographic characteristics of the participants are given in [Table 1].

Lower back pain

The lifetime prevalence of lower back pain as reported by the participants in this study was found to be 57.9% (n=232), whereas the annual prevalence and point prevalence was found to be 73.1% (n=293) and 47.1% (n=189). When the three types of prevalence were compared between two genders, it was observed that point prevalence of lower back pain was more reported in females (55%) compared to males (40.1%), which showed a statistically significant difference (p=0.003). There were no statistically significant differences seen in annual prevalence and lifetime prevalence of lower back pain between the two genders. Similarly, there were no statistically significant differences observed in annual prevalence, point prevalence, and lifetime prevalence of lower back pain between participants Body mass index and also between different academic years [Table 2].

When we compared the lower back pain prevalence according to different colleges, it was found that the annual prevalence was comparatively more reported among students of College of Medicine (80.7%), Administrative and Financial Sciences (87.1%), and Engineering (83.3%) compared to students from other colleges (p=0.007). There was no statistically significant difference seen in point prevalence of lower back pain between students from different colleges (p=0.159). The lifetime prevalence of lower back was found to be in students from College of Applied Medical Sciences (73.2%), Engineering (77.8%), and Administrative and Financial Sciences (77.4%) compared to other colleges, which showed statistically significant differences (p=0.003) [Table 3].

Quality of life in participants with lower back pain:

The impact of lower back pain on Quality of life among participants (n=232) was assessed using the RAND 36-Item Health Survey. The 36-Item form is subdivided into nine subdomain scales, namely: Physical functioning, role limitations due to physical health, role limitations due to emotional problems, Energy/fatigue, Emotional wellbeing, Social functioning, Pain, General health, and overall health change, where a higher score showed better Quality of life. The internal consistency of each domain and its means are given in [Table 4].

When the scores of each domain were compared between two genders, it was found that the scores of the domain 'Energy/fatigue were significantly higher (better) in males (47.4 ±

23.3) compared to female students (38.3 ± 23.4), p=0.004. The scores for the domain 'pain' were reported higher in males (71.8 ± 25.3) compared to females (65.4 ± 23.9), p=0.049. The scores for general health were also better in males (63.3± 17.1) compared to females (58.8± 17.2), p=0.046 [Table 5].

The comparison of scores based on the participants' academic year showed statistically significant differences in all domains except for two domains (Role limitations due to emotional problems and Overall health change). The scores for Physical functioning were found to be higher in the sixth year (71.4 ± 32.8) and third-year students (66.0 ± 31) compared to others (p=0.007). The scores for Role limitations due to physical health were observed higher among Fifth (76.8 ± 33.3), sixth-year dental students (76.9 ± 36.4), and interns and graduates (71.4 ± 36.6) compared to others (p=0.010). The interns and graduates comparatively showed statistically significant higher scores for energy/fatigue (61.4 ± 21.5), emotional wellbeing (71.4 ± 23), social functioning (78.6 ± 18.7), and General health (78.6 ± 16.5). The pain scores were comparatively higher among the sixth year (81.8 ± 18.9), Fourth year (80.5 ± 20.2), and fifth-year (76.9 ± 22.0), p<0.001 [Table 6].

When we compared the scores of all the domains were compared between students of different colleges, the score for Physical functioning was found to be higher among students of College of Arts (73.0 ± 34.7), and lower scores were observed among College of Dentistry (30.0 ± 22.7) (p=0.003). The scores for Role limitations due to emotional problems were found to be higher among students of College of Dentistry and lower among College of Design and Applied Arts (p=0.043). The Energy/fatigue scores were higher among College of Arts students, and lower scores were seen among students of College of Design and Applied Arts (p=0.001). The emotional well-being scores were higher among College of Community Service and Continuing Education

students and lesser among students of College of Design and Applied Arts (p<0.001). The social functioning scores were higher among College of Arts students and lesser among students of College of Dentistry (p=0.043). The pain scores were higher among College of Dentistry students and lowest among students of College of Design and Applied Arts (p=0.012) [Table 7].

The comparison of scores of different domains based on the BMI of the students is given in Table 8. The scores were for Role limitations due to physical health was higher among students belonging to normal weight (68.1 ± 37.3), and lower scores were seen among underweight students (p<0.001). Students who were obese showed higher scores for Role limitations due to emotional problems (p=0.014) and Emotional wellbeing (p<0.001), whereas lower scores for both these domains were observed among underweight students. The general health scores were found to be comparatively higher in overweight students and lower among underweight students (p<0.043) [Table 8]

Comparison of the Impact of LBP on QOL (n=401)

To calculate the impact of lower back pain on the Quality of life, all the nine domains' scores were added. The mean scores for total Quality of life in students who had an annual prevalence of lower back pain were 512.6 ± 172.5, and in those who didn't have lower back pain was 593.7± 149.9, which showed a statistically significant difference (p<0.001) Similarly, there were statistically significant differences in QOL scores in students who had lifetime and point prevalence of lower back pain with those who didn't have any prevalence [Table 9]. A linear regression model was performed to see the levels of variability in the Quality of Life scores due to lower back pain by controlling the covariates: gender, academic year, College, and BMI. It showed a statistically significant difference in total Quality of life scores except for gender and College [Table 10]

Table 1: Sociodemographic characteristics of participants (n=401)

		Frequency	Percent
Gender	Female	189	47.1
	Male	212	52.9
Year	First	61	15.2
	Second	59	14.7
	Third	52	13.0
	Fourth	75	18.7
	Fifth	56	14.0
	Sixth	91	22.7
	Intern or graduate	7	1.7
Collge	Medicine	145	36.2
	Applied Medical Sciences	41	10.2
	Pharmacy	27	6.7
	Dentistry	4	1.0
	Community Service and Continuing Education.	4	1.0
	Science	21	5.2
	Engineering	18	4.5
	Administrative and Financial Sciences	31	7.7
	Computing and Information Technology	38	9.5
	Arts	15	3.7
	Design and Applied Arts	15	3.7
	Faculty of Education	23	5.7
	Sharia and Regulations	19	4.7
Body Mass Index	Underweight	67	16.7
	Normal weight	176	43.9
	Overweight	104	25.9
	Obesity	54	13.5

Table 2: Comparison of prevalence of prevalence of lower back pain with baseline characteristics

			Annual Prevalence		P value	Point Prevalence		P value	Lifetime low back pain		P value
			No	Yes		No	Yes		No	Yes	
Gender	Female	N	45	144	0.183	85	104	0.003	80	109	0.944
		%	23.8	76.2		45.0	55.0		42.3	57.7	
	Male	N	63	149		127	85		89	123	
		%	29.7	70.3		59.9	40.1		42.0	58.0	
Body Mass Index	Underweight	N	13	54	0.206	30	37	0.289	28	39	0.907
		%	19.4	80.6		44.8	55.2		41.8	58.2	
	Normal weight	N	55	117		89	83		71	101	
		%	32.0	68.0		51.7	48.3		41.3	58.7	
	Overweight	N	25	79		62	42		42	62	
		%	24.0	76.0		59.6	40.4		40.4	59.6	
	Obesity	N	15	39		28	26		25	29	
		%	27.8	72.2		51.9	48.1		46.3	53.7	
Academic year	First	N	22	39	0.078	33	28	0.652	26	35	0.072
		%	36.1	63.9		54.1	45.9		42.6	57.4	
	Second	N	22	37		33	26		30	29	
		%	37.3	62.7		55.9	44.1		50.8	49.2	
	Third	N	7	45		22	30		12	40	
		%	13.5	86.5		42.3	57.7		23.1	76.9	
	Fourth	N	18	57		40	35		32	43	
		%	24.0	76.0		53.3	46.7		42.7	57.3	
	Fifth	N	13	43		27	29		23	33	
		%	23.2	76.8		48.2	51.8		41.1	58.9	
	Sixth	N	24	67		53	38		44	47	
		%	26.4	73.6		58.2	41.8		48.4	51.6	
	Intern or graduate	N	2	5		4	3		2	5	
		%	28.6	71.4		57.1	42.9		28.6	71.4	

Table 3: Table 2: Comparison of prevalence of prevalence of lower back pain between different colleges

			Annual Prevalence		P value	Point Prevalence		P value	Lifetime low back pain		P value
			No	Yes		No	Yes		No	Yes	
College	Medicine	N	28	117	0.007	75	70	0.159	62	83	0.003
		%	19.3	80.7		51.7	48.3		42.8	57.2	
	Applied Medical Sciences	N	10	31		21	20		11	30	
		%	24.4	75.6		51.2	48.8		26.8	73.2	
	Pharmacy	N	12	15		18	9		15	12	
		%	44.4	55.6		66.7	33.3		55.6	44.4	
	Dentistry	N	2	2		3	1		4	0	
		%	50.0	50.0		75.0	25.0		100	0.0	
	Community Service and Continuing Education.	N	0	4		3	1		1	3	
		%	0.0	100		75.0	25.0		25.0	75.0	
	Science	N	9	12		11	10		12	9	
		%	42.9	57.1		52.4	47.6		57.1	42.9	
	Engineering	N	3	15		4	14		4	14	
		%	16.7	83.3		22.2	77.8		22.2	77.8	
	Administrative and Financial Sciences	N	4	27		13	18		7	24	
		%	12.9	87.1		41.9	58.1		22.6	77.4	
	Computing and Information Technology	N	11	27		23	15		13	25	
		%	28.9	71.1		60.5	39.5		34.2	65.8	
	Arts	N	6	9		11	4		10	5	
		%	40.0	60.0		73.3	26.7		66.7	33.3	
	Design and Applied Arts	N	5	10		6	9		6	9	
		%	33.3	66.7		40.0	60.0		40.0	60.0	
	Faculty of Education	N	12	11		13	10		13	10	
		%	52.2	47.8		56.5	43.5		56.5	43.5	
Sharia and Regulations	N	6	13	11	8	11	8				
	%	31.6	68.4	57.9	42.1	57.9	42.1				

Table 4: Mean scores for the domains of RAND 36-Item Health Survey

	N of item	Alpha (Internal consistency)	Mean	SD	Minimum	Maximum
Physical functioning	10	0.953	61.2	33.9	0.0	100
Role limitations due to physical health	4	0.840	66.9	38.7	0.0	100
Role limitations due to emotional problems	3	0.840	54.6	43.4	0.0	100
Energy/fatigue	4	0.524	48.5	24.2	0.0	100
Emotional wellbeing	5	0.641	54.3	24.3	0.0	100
Social functioning	2	0.789	59.8	27.8	0.0	100
Pain	2	0.687	75.1	24.1	0.0	100
General health	5	0.460	63.1	17.0	15.0	100
Over change in health	1	-	63.3	29.3	0.0	100

Table 5: Comparison of domain scores between two genders (n=232)

		N	Mean	SD	P value
Physical functioning	Female	109	64.0	28.9	0.853
	Male	123	63.3	34.6	
Role limitations due to physical health	Female	109	58.5	39.6	0.515
	Male	123	62.0	42.0	
Role limitations due to emotional problems	Female	109	43.7	42.7	0.434
	Male	123	48.2	44.6	
Energy/fatigue	Female	109	38.3	23.4	0.004
	Male	123	47.4	23.3	
Emotional wellbeing	Female	109	49.0	22.4	0.106
	Male	123	54.1	25.6	
Social functioning	Female	109	55.0	28.3	0.445
	Male	123	57.9	29.0	
Pain	Female	109	65.4	23.9	0.049
	Male	123	71.8	25.3	
General health	Female	109	58.8	17.2	0.046
	Male	123	63.3	17.1	
Over all change in health	Female	109	57.3	24.1	0.054
	Male	123	64.4	30.7	

Table 6: Comparison of domain scores between different academic years (n=232)

		Physical functioning	Role limitations due to physical health	Role limitations due to emotional problems	Energy /fatigue	Emotional wellbeing	Social functioning	Pain	General health	Overall health change
Mean (SD)	First	54.5 (32.3)	59.4 (40.6)	50.8 (43.3)	45.2 (24.1)	46.2 (22.5)	49.4 (29.5)	72.6 (27.5)	55.9 (16.9)	59.4 (29.6)
	Second	55.2 (33.7)	58.1 (40.9)	48.6 (44.8)	44.7 (26.2)	47.9 (20.7)	50.4 (25.0)	66.7 (27.6)	57.3 (19.1)	59.3 (31.1)
	Third	66.0 (31.0)	62.0 (40.4)	46.8 (43.9)	46.8 (26.0)	55.5 (26.1)	61.8 (26.5)	67.1 (26.1)	60.7 (16.5)	57.2 (34.1)
	Fourth	54.1 (33.9)	63.3 (38.0)	52.9 (42.5)	54.7 (21.8)	57.7 (24.8)	62.0 (26.6)	80.5 (20.2)	64.1 (14.1)	67.7 (28.7)
	Fifth	64.0 (35.7)	76.8 (33.3)	61.9 (41.4)	42.6 (21.8)	49.2 (21.8)	61.4 (26.0)	76.9 (22.0)	65.8 (16.8)	63.8 (28.2)
	Sixth	71.4 (32.8)	76.9 (36.4)	61.2 (43.7)	51.6 (24.3)	62.2 (24.6)	67.6 (28.2)	81.8 (18.9)	69.3 (15.1)	67.9 (25.6)
	Intern or graduate	55.0 (40.9)	71.4 (36.6)	71.4 (40.5)	61.4 (21.5)	71.4 (23.0)	78.6 (18.7)	65.4 (26.8)	78.6 (16.5)	67.9 (27.8)
		0.007	0.010	0.228	0.023	<0.001	<0.001	<0.001	<0.001	0.207

Table 7: Comparison of domain scores between different colleges (n=232)

		Physical functioning	Role limitations due to physical health	Role limitations due to emotional problems	Energy/fatigue	Emotional wellbeing	Social functioning	Pain	General health	Overall health change
Mean (sd)	Medicine	66.1 (35.5)	68.6 (40.4)	56.1 (43.5)	45.7 (23.9)	52.4 (24.5)	61.6 (28.5)	79.8 (20.9)	67. (17.1)	63.4 (28.7)
	Applied Medical Sciences	58.2 (32.9)	61.6 (39.6)	43.1 (44.2)	39.9 (29.8)	46.8 (29.4)	48.5 (29.7)	70.6 (24.7)	56.6 (18.4)	59.8 (29.0)
	Pharmacy	40.2 (32.9)	66.7 (39.2)	71.6 (37.8)	55.9 (18.1)	53.8 (19.8)	50.0 (21.7)	74.4 (21.5)	59.3 (15.9)	67.6 (33.1)
	Dentistry	30.0 (22.7)	93.8 (12.5)	91.7 (16.7)	53.8 (7.5)	49.0 (6.8)	46.9 (35.9)	91.3 (11.8)	57.5 (26.0)	93.8 (12.5)
	Community Service and Continuing Education.	45.0 (34.9)	68.8 (47.3)	58.3 (50.0)	56.3 (11.8)	78.0 (27.2)	68.8 (37.5)	64.4 (47.4)	68.8 (30.7)	50 (40.8)
	Science	51.7 (37.1)	53.6 (44.9)	42.9 (46.1)	57.4 (15.3)	62.5 (18.6)	64.3 (23.1)	73.5 (34.4)	61.2 (21.0)	59.5 (32.1)
	Engineering	70.3 (30.1)	52.8 (40.1)	51.9 (44.6)	45.6 (26.8)	56.2 (22.6)	56.9 (25.4)	69.9 (23.1)	64.4 (15.5)	61.1 (28.7)
	Administrative and Financial Sciences	64.7 (27.2)	70.2 (31.9)	50.5 (45.4)	47.9 (25.5)	59.0 (23.4)	66.5 (27.5)	71.9 (18.3)	64.2 (13.5)	60.5 (24.8)
	Computing and Information Technology	69.6 (32.2)	68.4 (36.6)	56.1 (44.6)	50.3 (28.6)	56.9 (22.0)	63.2 (30.6)	73.4 (25.4)	60.4 (17.1)	59.2 (30.4)
	Arts	73.0 (34.7)	88.3 (20.8)	77.8 (41.1)	68.7 (22.8)	72.3 (27.6)	74.2 (24.3)	76.7 (24.9)	62.3 (16.9)	68.3 (34.7)
	Design and Applied Arts	53.7 (24.3)	45.0 (44.5)	33.3 (35.6)	34.0 (18.8)	30.1 (12.8)	50.0 (25.0)	52.2 (32.7)	54.7 (14.7)	63.3 (32.6)
	Faculty of Education	48.7 (35.5)	73.9 (35.7)	60.9 (41.0)	54.1 (17.8)	52.5 (21.2)	59.2 (22.7)	77.9 (24.6)	63.9 (13.6)	66.3 (28.8)
Sharia and Regulations	61.1 (25.2)	71.1 (30.3)	45.6 (37.2)	53.9 (14.3)	65.1 (18.6)	62.5 (25.7)	77.2 (20.3)	63.2 (10.6)	72.4 (24.9)	
P value		0.003	0.097	0.043	0.001	<0.001	0.043	0.012	0.058	0.127

Table 8: Comparison of domain scores according to BMI (n=232)

		N	Mean	SD	
Physical functioning	Underweight	39	57.6	33.0	0.115
	Normal weight	101	65.1	32.8	
	Overweight	62	69.2	30.3	
	Obesity	29	54.3	30.1	
Role limitations due to physical health	Underweight	39	35.9	42.8	<0.001
	Normal weight	101	68.1	37.3	
	Overweight	62	64.1	39.6	
	Obesity	29	57.8	42.3	
Role limitations due to emotional problems	Underweight	39	27.4	34.1	0.014
	Normal weight	101	46.5	44.5	
	Overweight	62	50.0	45.1	
	Obesity	29	59.8	43.1	
Energy/fatigue	Underweight	39	37.7	20.8	0.153
	Normal weight	101	41.5	24.0	
	Overweight	62	45.7	25.0	
	Obesity	29	49.3	22.1	
Emotional wellbeing	Underweight	39	41.4	20.6	<0.001
	Normal weight	101	49.0	22.5	
	Overweight	62	55.3	24.4	
	Obesity	29	65.9	26.8	
Social functioning	Underweight	39	47.4	26.2	0.148
	Normal weight	101	57.2	30.8	
	Overweight	62	58.5	26.2	

	Obesity	29	62.1	27.6	
Pain	Underweight	39	66.7	26.7	0.915
	Normal weight	101	69.3	22.1	
	Overweight	62	69.9	25.2	
	Obesity	29	67.4	31.4	
General health	Underweight	39	55.8	18.8	0.043
	Normal weight	101	61.6	16.6	
	Overweight	62	65.1	18.0	
	Obesity	29	57.9	14.0	
Overall health change	Underweight	39	53.8	32.7	0.303
	Normal weight	101	62.9	24.7	
	Overweight	62	63.7	28.2	
	Obesity	29	59.5	31.6	

Table 9: Comparison of total scores of Quality of life according to different prevalence (n=401)

Prevalence	Lower back pain	N	Mean	Std. Deviation	P value
Life time prevalence	Yes	232	512.5517	172.52550	<0.001
	No	169	593.7130	149.91738	
Annual prevalence	Yes	293	516.5722	169.16544	<0.001
	No	108	628.6466	134.93793	
Point prevalence	Yes	189	475.8501	164.35878	<0.001
	No	212	609.9709	144.72767	

Covariates: Annual prevalence, Gender, academic year, college and BMI

Table 10: Regression model for impact of LBP on QOL (n=401)

Dependent Variable: Total Quality of life scores					
Source	Type III Sum of Squares	df	Mean Square	F	P value
Corrected Model	2098556.055 ^a	5	419711.211	18.026	.000
Intercept	3321845.378	1	3321845.378	142.668	.000
Gender	6801.890	1	6801.890	.292	.589
Academic year	843582.792	1	843582.792	36.231	.000
College	7148.426	1	7148.426	.307	.580
BMI	139040.487	1	139040.487	5.972	.015
Annual prevalence	1068965.854	1	1068965.854	45.910	.000
Error	9197070.433	395	23283.723		
Total	131171794.194	401			
Corrected Total	11295626.488	400			

a. R Squared =.186 (Adjusted R Squared =.175)

Discussion

Lower back pain is one of the most common reasons for absence from attending work and college after upper respiratory tract infections [23]. This study's findings showed that lower back pain (LBP) was very much higher and had significantly impacted the quality of life (QOL) of students. The incidence of LBP creates an economic burden due to reduced efficiency and productivity at the workplace [24]. Even though there is no clear cause for LBP, some of the factors that could trigger this kind of non-specific pain include tense muscles, reduced movement, and weak core muscles, prolonged sitting in one position, strenuous physical activities, psychological stress at the workplace or college or family, changes in perception of pain due to changes in the central nervous system, genetic predisposition [25-27]. A study done in Saudi Arabia among male University students reported that the prevalence of LBP was 30% [28], which is comparatively lesser than the prevalence found in our study for male students. Among university students, one of the common causes of the LBP could be attributed to emotional stress [29], and it is evident that many psychosocial factors such as poor social support, high job demands, and poor job control play an important role in the etiology of musculoskeletal pain [30]. Another recent study conducted among Medical Students of Taif

University reported an LBP prevalence of 33.3% [20], which was lesser than the prevalence of LBP among medical students in our study (57.2%).

A study done by Alshagga et al. among undergraduate medical students reported that long working hours was one of the contributory factors for LBP [31]. We have the opinion that the higher prevalence of the LBP could not be attributed to long hours of sitting during the lectures as most of the lectures were conducted online due to COVID-19 [32]. Obesity is considered a risk factor for LBP development due to the biomechanical and inflammatory effects of increased body weight on the spine [33]. In our study, we didn't find any significant effect of higher BMI on LBP prevalence. It was reported that LBP has a major impact on various physical and psychosocial health domains, and it is the major reason for limited activity in adults less than 45 years old [34,35]. Although many studies have investigated the impact of LBP on the QOL, there is a lack of studies in Saudi Arabia that assessed and compared the impact of LBP on QOL of different specialties of university students. This study's findings showed that LBP had a significant impact on various domains, including physical, Emotional, and Social health. A study done among physiotherapy students in Zimbabwe reported a lifetime prevalence of LBP to be 56.7% and showed a significant association in lowering physical

disability [36]. University students are at higher risk of developing LBP due to improper posture, reduced physical activity, sedentary lifestyle, and physiological stress [37-39]. Moroder et al. had reported that medical students are 2.5 times less physically active than non-science students, which is a major reason for the higher incidence of LBP among medical students [40]. It is also reported that female students have an increased risk of developing LBP compared to males. This could be due to reduced physical and sports activities, high sedentary activities, and insufficient quantity and quality of sleep compared to male students [41-43]. These findings are consistent with our study findings where female students showed a higher annual prevalence of LBP even though there were no significant differences in its impact on QOL. Health-related quality of life is considered a crucial outcome when investigating LBP. Our study's findings show that chronic LBP negatively impacted the Health-related quality of life of university students. The incidence of LBP could reduce the future productivity and efficiency at the workplace when these students begin to work in their respective fields. Further research is warranted to identify additional contributory factors that could help develop a specific intervention to reduce the incidence of LBP among University students and minimize the burden on both students and parents. One of the limitations of this study is its cross-sectional nature, which may have prevented us from making a conclusion regarding the causality. There is another possibility for bias that may have occurred due to underreporting of LBP among the students. All of the above limitations should be considered before generalizing our study findings.

Conclusion

This cross-sectional study showed that lower back pain had negatively impacted the health-related quality of life of Taif university students. Female students had a higher prevalence of LBP than males, but there were no significant differences in the impact on quality of life. In students who showed an annual prevalence of LBP, lower academic year and increased BMI were found to affect the quality of life significantly. There is a need to increase the awareness among University students regarding various risk factors for LBP and their relationship with Health-related quality of life.

Ethics approval

Institutional research ethics board approval was acquired before conducting any study-related procedures. A statement was included at the beginning of the questionnaire clarifying that the participation in this study is voluntary and that collected data will be anonymous and will only be used for this study.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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