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Research Paper

The interaction between Lumbar Back Pain (LBP) and physical activity in daily life in 18-24 years old young people

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Abstract

The paper aims to examine the interaction between lumber back pain and physical activity in the daily lives of young people who are 18-24 years old. The study included 200 subjects who did not use medication and who did not have any systemic chronic disease. IPAQ Short Form (International Physical Activity Questionnaire) and the Oswestry Low Back Pain Disability Questionnaire (ODQ) were used for data collection. The average age is 21,48. The surveys measured the impact of LBP in daily life and the Metabolic Equivalent (MET) values corresponding to the physical activity values alongside the frequency of daily activities. The medium age of the respondents was 21.48. 98 (49%) of them were male and 102 (5%) of them were female. We have determined a medium level positive correlation between the increase in physical activity and the negative impacts of the back pain and the correlation was 0,503. In other words, the results suggest that the activity level of the people with LBP did not decrease. Having said that, the results also suggest that as the MET level denoting the physical activity in daily life increases, the negative impact of the LBP in daily life also increases. LBP is a pain that limits activities and makes it difficult to stand up and even sitting down in some cases. 80% of the individuals having an active life have complaints with regard to LBP at some point in their lives.

Keywords: lumbar back pain, MET value, physical activity

INTRODUCTION

When human beings integrate non intense or non-standardized intense activities into their daily lives decreasing the amount of daily physical activities in the prolonged education life in his/her search for a healthy and long life, it results in increased pain and diminished life quality. Therefore, the health quality of the individuals deteriorates and they get away from a healthy life.

The previous studies have indicated that physical activity is high and more significantly related to life quality in comparison with the other variables. Regular physical activity increases the life quality contributing to psychological wellbeing and physical functionality [1]. World Health Organization (WHO) known with its groundbreaking research in the field of healthcare focuses on motivational studies and policies alongside the efforts to better the life quality of the individuals in recent years [2,3].

The factors affecting Lumbar Back Pain (LBP) and the physical activities in daily life have been widely researched in the literature however; a study that examines both does not exist. Literature, instead, mostly focuses on daily life activities with a special emphasis on life quality.

LBP is defined as the dorsal region pain localized in the 12th costa and the inferior part of the gluteal area and is accompanied by leg pain in some cases. LBP, therefore, might cause a negative effect on the physical, psychological and social wellbeing, and might cause a deterioration in the general health overall. It might be observed in every society and everyone can have LBP related problems and can be a common occurrence, therefore it is a grave health issue [4-6]. The fact that LBP affects the life quality, the psychosocial and emotional state of the diseased negatively has been widely studied in the literature [7,8].

In order to plan the treatment, it is imperative that the diseased is examined in detail [9].

The clinicians and researchers go through difficulties in the assessment of the patients with LBP and the follow up of their treatment [9,10]. The evaluation of the physical parameters, however, does not offer information with regard to the daily activities of the patients or their functions [11].

With the definition of health made by the World Health Organization (WHO) the importance placed on the quality of health has gained in importance. Quality in health envisages the patient's assessment of the diagnosis and treatment procedures by the patients. In the assessment of the treatment results, therefore, the perceived wellbeing results of the patients alongside with objective evaluation results should be utilized.

This study investigates the correlation between the physical activities in the daily lives of the university students and the rate of LBP and aims to contribute to the overall health of the young people in lumbar health. The stressful and immobile lifestyle that came out as a consequence of the developing technology in the new World order and unhealthy diet based on fast foods has negative impacts on human life. As a consequence, the individuals are limited in their physical activities in their daily lives and the young people spend time for a quick workout in the limited time they have left apart from studying. That being the case it appears that LBP has already come to occupy a no ignorable place in their lives [12].

The goal of the present paper is to reveal the correlation between the LBP and physical activities in the daily life of the 18-24-year-old students in light of the data examined.

METHOD

We reached the subjects and gathered the data ourselves. 200 subjects who met the required conditions and volunteered to join the research fulfilled the forms under the guidance of the researchers.

The universe of this research is the 200 students studying in universities around Beşiktaş. The forum was administered to 200 people between February and April 2018 in the hours where the number of the students was not that high in the publicly open spaces of the universities.

The data on the physical activities in daily life was gathered through the IPAQ (International Physical Activity Questionnaire) and the impact of the LBP on daily life was gathered through the Oswestry Low Back Pain Disability Questionnaire (ODQ).

IPAQ Short Form-International Physical Activity Questionnaire Short Form was developed in an attempt to look into the physical activity levels of the 15-65-year-old and to reveal the findings [13].

As for Turkey, Öztürk conducted studies to test the reliability and validity of the IPAQ survey on university students in 2005 and subsequently repeated by the Hacettepe University School of Sports and Technology [14].

IPAQ survey has eight different versions. We administered IPAQ which takes the physical activities made over the last seven days into account [15,16].

Back Pain Functional Scale (BPFS), developed by Stratford et al. is an easy to apply scale evaluating the loss of functional caused by the back pain and draws on the disability model of the WHO [17]. Furthermore, Stratford et al. have found out that in the determination of the clinical changes in patients with back pain with a duration of fewer than two weeks BPFS offers better results than the Roland Morris Disability Questionnaire in analyzing the loss of function in back pain [18]. It, therefore, follows that BPFS might be used as a standard measurement tool in the evaluation of the function loss in back pain. 16 Therefore, this study employs BPFS in the Turkish case and looks into its validity and reliability of a group of patients with back pain [19].

FINDINGS

Table 1 indicates that 92 makes and 108 females who are 18-24 years old joined the study.

Table 2 shows that 5 female respondents out of 92 are 18 years old, 10 are 19 years old, 6 are 20 years old, 20 are 21 years old, 14 are 23 years old, and 29 are 24 years old. The same table reveals that 14 of the total 108 male respondents are 18 years old, 8 are 19 years old, 12 are 20 years old, 20 are 21 years old, 15 are 22 years old, 13 are 23 years old, and 10 are 24 years old. The average age of the respondents is 21.48. Considering all the male and female respondents in total, 19 of the respondents are 18 years old, 18 are 19 years old, 18 are 20 years old, 40 are 21 years old, 35 are 22 years old, 27 are 23 years old and 39 are 24 years old.

Table 3 shows that 75 of the 92 male respondents are active on a minimum level whereas 17 are highly active. 95 of the female respondents are active on a minimum level whereas 13 are highly

Table 1. Gender ratio

Gender	Number of participants
Male	92
Female	108
Total	200

Table 2. Age ratio

Age / Gender		19	20	21	22	23	24
Female (92)	5	10	6	20	20	14	29
Male (108)	14	8	12	20	15	13	10
Total Average (21,48)	19	18	18	40	35	27	39

active. In total 70 of the respondents are active on a minimum level whereas 30 are highly active among the total respondents the number of whom amounts to 200. There are no inactive subjects and this might stem from the age range the paper attempts to examine. Consequently, 85% of the respondents are active on a minimum level whereas 15% are highly active.

In Tables 4-6 the steps of the Oswestry group have been explained and the table will be evaluated in line with these steps.

Group 1: LBP does not constitute a major problem in the patient's life

Group 2: LBP limits the patient's life slightly

Group 3: LBP limits the patient's life severely

Group 4: The daily life of the patient is limited by LBP totally

Group 5: Bed ridden patient (or the symptoms are exaggerated) (There are no such individuals in our study group)

When we compare the Oswestry level against the genders, we have found out that 10 of the 92 male subjects take place in group 1, 3 in group 2, 34 in group 3, 17 in group 4. There is none that might be put under group 5. 15 of the 95 females take place in group 1, 32 in group 2, 50 in group 3, 11 in group 4. Considering the females and males in total, 12.5% of the participants take place in group 1, 31.5% in group 2, 42% in group 3, 14% in group 4. The fact that none falls into group 5 has to do with the fact that the group researched is between 18-24 years old. You might see the number of the respondents falling into each group when compared against the gender below.

Table 5 shows the distribution of the cross-sectional groups as a result of the IPAQ and Oswestry surveys. 15 of the 108 females joining the study are minimum active and fall into group 1, 32 are minimum active and fall into group 2, 42 are minimum active fall into group 3, 6 are minimum active and fall into group 4. None falls into the cross-section of minimum active and group 1 member and as well as the cross-section of the highly active and group 2 members. There are 8 respondents who are highly active and fall into group 3, 5 respondents who are highly active and fall into group 4. 15 of the total 108 female respondents fall into group 1, 32 in group 2, 50 in group 3, 11 in group 4. There are no inactive females joining the study. 95 of the female respondents are minimum active whereas 13 are highly active.

Table 6 shows the distribution of the cross-sectional results of males according to the IPAQ and Oswestry surveys. The number of males who are active on a minimum level and fall into group 1 is 9 among the 92 male respondents, 27 males are active on a minimum level and fall into group 2, 27 males active on a minimum level and fall into group 3, 12 males active on a minimum level and fall into group 4.1 male is highly active and falls into group 1, 4 are highly active and fall into group 2, 7 are highly active and falls into group 3, 5 are highly active and falls into group 4.

As regards the groups, 10 males take place in group 1, 31 in group 2, 34 in group 3, 17 in group 4. The findings suggest that there are no inactive male respondents. 17 of the 92 male respondents are active on a minimum level and 75 are highly active. The correlation between the times dedicated to physical activities and Oswestry values.

Table 7 displays the correlation range between the time spent on the intense activity and the Oswestry results of the 200 respondents

Table 3. Physical activity level and the percentage of the individuals in each segment

Level of activity / Gender	Inactive	Minimum active	Highly active
Male	0	75	17
Female	0	95	13
Total	0	170	30

Table 4. Level of LBP and the percentage of the individuals in each segment

Oswestry group / Gender	Group 1	Group 2	Group 3	Group 4
Male	10	31	34	17
Female	15	32	50	11
Total	25	63	84	28

Table 5. Distribution of the results for females

Oswestry group / IPAQ group	Group 1	Group 2	Group 3	Group 4
Inactive	0	0	0	0
Minimum active	15	32	42	6
Highly active	0	0	8	5
Total(108)	15	32	50	11

Table 6. Distribution of the results for males

Oswestry group / IPAQ group	Group 1	Group 2	Group 3	Group 4
Inactive	0	0	0	0
Minimum active	9	27	27	12
Highly active	1	4	7	5
Total (92)	10	31	34	17

Table 7. The correlation between activity time and Oswestry

Type of activity (of 200 people)	Average duration of the physical activity per week (in Minutes)	Standard deviation of average duration	The correlation values of the time spent on activities and the Oswestry results	
			r	p
Intense activity	105,4	84,983	0,501	0,000
Medium level activity	110,825	92,338	0,320	0,000
Walking	275,475	81,694	0,145	0,041

and the results point out to a medium level and positive correlation. It, therefore, stands to reason that as the time spent on the intense physical activities rises, the Oswestry results increase, that is the complaints about the LBP climb up ($p<0,05$).

The study suggests that there is a positive and weak correlation between the time dedicated by the participants to the physical activities and the Oswestry results. It, therefore, follows that as the time spent on the medium level intense physical activities rises, the Oswestry results increase so their hat is the complaints about the LBP climb up ($p<0,05$).

The study suggests that the relationship between the time the respondents dedicate to walking and the Oswestry results is positive, insignificant and very weak. That is the effect on the duration spent on walking on the Oswestry results is weak and the complaints about the LBP climb up ($p<0,05$).

The table below displays the correlation results of the Oswestry results and the IPAQ groups.

Table 8 shows the correlation results between MET value, corresponding to the total activity value in daily life, of the170 respondents who are active on a minimum level and the Oswestry results. The table suggests that as the MET values of the individuals who are active on a minimum level increase, the Oswestry values also increase on a medium level. It indicates that as the total MET value increases, the complaints about LBP rise up on a medium level ($p<0,05$).

As for the highly active respondents whose number amounts to 30 in this study, the findings suggest no significant relationship between

Table 8. The correlation values of the groups differentiated according to IPAQ results and the Oswestry

			The correlation between the IPAQ Groups and Oswestry Results	
Activity groups according to the IPAQ Results	**n (number of individuals)**	**x̄ ± ss**	**r**	**p**
Minimum active	170	1909 ± 674	0,564	0,000
Very active	30	3818 ± 1004	-0,107	0,574
Total individual	200	2195 ± 990	0,503	0,000

Table 9. Correlation values of IPAQ according to the demographic features of the individuals and the Oswestry

Evaluations / Demographic Features	Number of people	MET Average	Oswestry Average	r	p
Female	108	2127,5602 ± 995,85991	41,6667 ± 17,75535	0,507	0,000
Male	92	2275,4022 ± 982,96896	45,2174 ± 17,60109	0,490	0,000
Age 24	39	1981,6923 ± 809,54732	41,6410 ± 21,16040	0,660	0,000
Age 23	27	1886,1481 ± 838,2594	38,9630 ± 15,78091	0,710	0,000
Age 22	35	2323,1000 ± 982,38139	44,8571 ± 17,61874	0,406	0,015
Age 21	40	2076,1625 ± 874,05590	45,1500 ± 19,04859	0,598	0,000
Age 20	22	2455,3182 ± 1404,4384	42,6364 ± 15,06034	0,354	0,106
Age 19	18	2330,6667 ± 902,77065	42,7778 ± 16,32233	0,728	0,001
Age 18	19	2661,9737 ± 1120,9260	47,3684 ± 14,71285	0,122	0,617

Table 10. The impact of the answers to the Oswestry scale to the IPAQ results

Evaluations / Oswestry Questions	n (number of answers)	MET Average	Oswestry Average	r	p
Question 1	200	2195,5675 ± 990,22476	2,2050 ± 0,9989	0,507	0,00
Question 2	200	2195,5675 ± 990,22476	2,2000 ± 1,04665	0,481	0,00
Question 3	200	2195,5675 ± 990,22476	2,0900 ± 1,05235	0,434	0,00
Question 4	200	2195,5675 ± 990,22476	2,1350 ± 0,97547	0,377	0,00
Question 5	200	2195,5675 ± 990,22476	2,0750 ± 0,97680	0,379	0,00
Question 6	200	2195,5675 ± 990,22476	2,1350 ± 1,06416	0,402	0,00
Question 7	200	2195,5675 ± 990,22476	2,1350 ± 1,04028	0,390	0,00
Question 8	200	2195,5675 ± 990,22476	2,1650 ± 1,10175	0,381	0,00
Question 9	200	2195,5675 ± 990,22476	2,1550 ± 1,03262	0,451	0,00
Question 10	200	2195,5675 ± 990,22476	2,4950 ± 1,01742	0,494	0,00

the MET value and the impact of LBP on the daily life in the Oswestry scale (p>0,05).

Looking into the general findings, it might be suggested that as the total MET value of the physical activities in the daily lives of the respondents increase then the Oswestry value related to the complaints about the LBP in daily life rise and a medium level correlation emerges between these two elements. As a consequence, it appears that the total MET values and the problems aroused by the Oswestry results do affect each other positively (p<0,05).

The answers offered by the 108 females joining the study suggest that a significant result comes out when the MET values are compared against the Oswestry values (p<0,05). In a similar vein, The answers offered by the 92 males joining the study suggest that a significant result comes out when the MET values are compared against the Oswestry values (p<0,05) (Table 9).

When the MET values were compared against the Oswestry results in the 39 respondents who are 24 years of age, significant results came out (p<0,05). When the MET values were compared against the Oswestry results in the 27 respondents who are 23 years of age, significant results came out (p<0,05). When the MET values were compared against the Oswestry results in the 35 respondents who are 22 years of age, significant results came out (p<0,05). When the MET values were compared against the Oswestry results in the 40 respondents who are 21 years of age, significant results came out (p<0,05). When the MET values were compared against the Oswestry results in the 22 respondents who are 20 years of age, insignificant results came out (p>0,05). When the MET values were compared against the Oswestry results in the 18 respondents who are 19 years of age, significant results came out (p<0,05). When the MET values were compared against the Oswestry results in the 19 respondents who are 18 years of age, insignificant results came out (p>0,05).

With regard to the first question on the severity of LBP, a significant result came out between the correlation of the total met value and the IPAQ short survey (p<0,05) (Table 10). The average score of this question was 2,2050 ± 0,9989 points. With regard to the second question on the effect of personal care, a significant result came out between the correlation of the total met value and the IPAQ short survey (p<0,05). The average score of this question was 2,2000 ± 1,04565 points. When it comes to the third question on lifting weights, a significant result came out between the correlation of the total met value and the IPAQ short survey (p<0,05). The average score of this question was 2,0900 ± 1,05235 points. As for the fourth question on walking, a significant result came out between the correlation of the total met value and the IPAQ short survey (p<0,05). The average score of this question was 2,1350 ± 0,97547 points. With regard to the fifth question on sitting, a significant

result came out between the correlation of the total met value and the IPAQ short survey (p<0,05). The average score of this question was 2,0750 ± 0,97680 points. With regard to the sixth question on standing up, a significant result came out between the correlation of the total met value and the IPAQ short survey (p<0,05). The average score of this question was 2,1350 ± 1,06416 points. As regards the seventh question on sleeping, a significant result came out between the correlation of the total met value and the IPAQ short survey (p<0,05). The average score of this question was 2,1350 ± 1,04028 points. With regard to the eight-item on social life, a significant result came out between the correlation of the total met value and the IPAQ short survey (p<0,05). The average score of this question was 2,1650 ± 1,10175 points. As regards the ninth question on traveling, a significant result came out between the correlation of the total met value and the IPAQ short survey (p<0,05). The average score of this question was 2,1550 ± 1,03262 points. With regard to the tenth item on the gravity of the pain, a significant result came out between the correlation of the total met value and the IPAQ short survey (p<0,05). The average score of this question was 2,4950 ± 1,01742 points.

DISCUSSION

The findings of the study suggest that as the total MET values corresponding to the physical activities in the daily lives of the individuals who are 18-24 years of age increase, the negative impact of LBP in the daily lives does. As the administration of the IPAQ short form eases the individuals" recalling the walking, medium-range, and heavy exercises made over a span of the last seven days, the data gathered has come in a more objective way.

The study examined the Oswestry scale of the LBP in the dorsal region between the latest jeans with gluteal curves stemming from the way they study in a seated position on the university students who are 18-24 years old. The reason why we chose Oswestry has to with the fact that it offers more objective results and since it is made up of various parts it is easy to respond to the survey with regard to the effects of LBP on the daily lives [20]. Looking into the literature, most of the studies examining the relationship between pain and physical activity take up the people with chronic back pain as respondents. Cavlak et al. have found out that studying in inappropriate/ unhealthy positions in various vocational groups results in localization and similar muscle pains in terms of its characteristics and affects the functionality in daily life activities negatively [21].

Altınel et al. found no difference between the groups having low back pain history, sport and daily activity levels [22].

Verbunt et al. have found out that the level of physical activity does not decrease in people with chronic back pain. However, in the literature, there are some other studies reporting that the movement patterns of the patients who have LBP in reverse direction alter [23,24].

We have determined a medium level positive correlation between the increase in physical activity and the negative impacts of the back pain and the correlation was 0,503. In other words, the results suggest that the activity level of the people with LBP did not decrease. Having said that, the results also suggest that as the MET level denoting the physical activity in daily life increases, the negative impact of the LBP in daily life also increases.

Ketenci et al. have found out that working in non-appropriate positions results in localization and similar muscle pain in the study they had on people with different occupations and affect the functionality in daily life activities negatively [25]. Suni et al. have maintained that there is a relationship between the lumbar region's physical aptitude and LBP and spine dysfunctionality [26]. It follows therefore, that non suitable physical activities, that are excessive physical activities or the activities that do not fit the physical characteristics of the related individuals cause a negative impact on LBP. The results we have reached suggest that the average MET of people working out heavily was more than the people working out on a medium level. We have found out that if people go for the workout type that does not befit their physical aptitude then they might harm lumbar health by working out heavily. It must, however, be noted that the unconscious approach of the age group chosen for the purposes of this study might have affected the wrong choice of this age group in the sense that they went for heavy exercises.

Furthermore, the characteristics of different people might also have informed the results. Bejia et al. for instance, have concluded that advanced age might also give way to LBP [27]. Arslantaş et al. similarly, have maintained that elderly women in rural society are more prone to LBP [28]. Hashimato et al. have found out that the high body mass index increases the prevalence of LBP [29]. It might, therefore, be concluded that the differences might stem from variables such as gender, age, body mass index [27].

CONCLUSION

Based on the results we have reached as a conclusion of this study, we believe that a lumbar school program might be organized to tackle the LBP in the daily lives of individuals of certain ages. Moreover, the results also suggest that wrong positions in daily lives might results in LBP as the. Low-back pain was found to be higher in patients with minimal activity compared to those active in daily life. In addition, staying in the same wrong position for a long time without observing ergonomics in daily living activities triggers low back pain.

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