Prevalence of chronic pain and associated factors among medical students

Prevalência de dor crônica e fatores associados em estudantes de medicina

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ABSTRACT

BACKGROUND AND OBJECTIVES: Pain is a major complaint of individuals looking for healthcare services. The high prevalence of both acute and chronic pain makes it a public health problem, due to high costs imposed to society and healthcare services, in addition to the negative impact on daily activities of those living with such experience. This study aimed at identifying the prevalence of chronic pain among medical students of a University in the countryside of São Paulo.
METHODS: Cross-sectional study carried out with 395 students of all grades of the medicine course of the Universidade de Taubaté. Investigated variables were: pain incidence and duration, presence or not of triggering factor(s), use or not of painkillers, pain location and dimension according to McGill questionnaire.
RESULTS: There has been predominance of females with 253 participants (64.05%), prevailing the age group between 21 to 25 years with 217 students (54.93%). Among participants, 219 (55.44%) reported some type of pain and among them, 141 (64.38%) have reported chronic pain, that is, for more than six months, in a total of 35.69%.
CONCLUSION: In our study, chronic pain prevalence was 35.69%, especially among females. With regard to pain location, there has been more prevalence of lumbar and sacrococcygeal regions, followed by knees and headache, face and mouth and finally widespread pain.

Keywords: Chronic pain, Medical students, Pain.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A dor é uma das principais queixas dos indivíduos que procuram atendimento nos serviços de saúde. A alta prevalência de dor tanto aguda quanto crônica na população torna este um problema de saúde pública, devido aos elevados custos impostos à sociedade e aos serviços de saúde, além do impacto negativo nas atividades cotidianas daqueles que convivem com tal experiência. Este estudo teve como objetivo identificar a prevalência de dor crônica em estudantes de medicina de uma Universidade do Interior Paulista.
MÉTODOS: Estudo transversal, realizado com 395 estudantes de todas as séries do curso de medicina da Universidade de Taubaté. As variáveis investigadas foram: ocorrência e tempo da dor sentida, presença ou não de fator (es) desencadeante (s), uso ou não de fármacos para alívio da dor, localização e dimensão da dor segundo o questionário de McGill.
RESULTADOS: Houve predomínio do sexo feminino com 253 participantes (64,05%), prevalecendo a faixa etária de 21 a 25 anos com 217 alunos (54,93%). Entre os participantes, 219 (55,44%) apontaram a presença de algum tipo de dor e destes, 141 (64,38%) relataram sentir dor de forma crônica, ou seja, há mais de seis meses, perfazendo 35,69% do total.
CONCLUSÃO: Neste estudo, a prevalência de dor crônica foi de 35,69%, com maior ocorrência no sexo feminino. Em relação a localização da dor, houve maior prevalência na região lombar e sacrococcígea, seguida pelo joelho e em terceiro lugar a dor de cabeça, face e boca e por último dor generalizada.

Descritores: Dor, Dor crônica, Estudantes de medicina.

INTRODUCTION

Pain is defined as unpleasant sensory and emotional experience described in terms of real or potential injuries, always subjective in its experiences, being a major complaint of individuals looking for health services[1,2].
According to the International Association for the Study of Pain (IASP), chronic non-cancer pain (CP) is defined as that without apparent biological value lasting beyond normal tissue healing time and for more than six months, however some authors consider it already after three months[1].
Persistence of CP prolongs the existence of already mentioned symptoms and may exacerbate them, in addition to affecting quality of life. Factors such as depression, physical and functional incapacity, dependence, social isolation, changes in sexuality, economic imbalance, death feelings and others are associated to CP[3].
The high prevalence of pain in the population makes it a public health problem due to high costs imposed to society and health services, in addition to the negative impact on daily life activities of those living with such experience[2]. Low back pain, classic example of CP, is considered a public health problem with high medical and social costs

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in the United States, being reason for the loss of 1400 working days per thousand inhabitants per year. In Europe, it is the most prevalent cause of limitation in individuals aged below 45 years and the second most frequent cause of medical consultations[4].

It is estimated that CP affects between 30 and 40% of the Brazilian population, being the major reason for absenteeism, medical leaves, early retirement, labor indemnities and low productivity[5]. Among students of the nursing course of the Universidade Federal de Goiás, with 211 students, there has been self-reported CP prevalence of 59.7%[2].

All consequences of CP emphasize the importance of measuring its prevalence aiming at planning measures for its control and management[3].

To understand and compare pain among different populations and aiming at developing a universal language about pain, Melzak, in 1975, has developed the McGill Questionnaire, in the McGill University, Montreal, Canada, to supply qualitative pain measurements which could be statistically evaluated. With its major utility as clinical and research tool, in 1996, Brazilian authors have published an adaptation proposal for Portuguese with good results[6].

Based on evidences proving the impacts of CP, this study was proposed and aimed at establishing the prevalence of self-referred CP among medical students, according to gender and location.

METHODS

This is a cross-sectional study carried out in the school of medicine, Universidade de Taubaté (UNITAU), from March to August 2016.

Target population was made up of 551 participants, conveniently determined sample according to the number of students enrolled in the Medicine Graduation Course. Exclusion criteria were those below 18 and above 30 years of age. From 551 eligible students, 156 (28.31%) have not participated in the research by refusal or because they were not located in the classroom after one attempt. So, population was made up of 395 students distributed in the six years of the medical course. Outcome variables were: pain, time since onset, existence or not of triggering factors, use of painkillers, pain location and dimension (sensory, affective, evaluative and miscellaneous) according to McGill questionnaire[7].

Chronic pain was considered that felt for six months or more in a same site[1]. Pain was located by means of body diagrams illustrating patient's front and back, with numbered anatomic regions, for participants to indicate the number or mark on the diagram the affected region. Dimension was evaluated by means of McGill questionnaire, with 78 pain descriptors, classified in four major groups (sensory, affective, evaluative and miscellaneous) and 20 subgroups[7]. Exposure variables considered in this study were: gender, age, height, weight, course grade, extracurriculum activities (trainee, job, research, academic leagues, among others) and practice of regular physical activity (minimum of once a week).

Data were collected in classrooms of the Medicine Department, UNITAU, in hospitals linked to the institution, during clinical meetings or other activities, where expected audience were all students enrolled in each grade. All candidates were informed about the study, its objectives and those accepting it have signed the Free and Informed Consent Term (FICT), filling a questionnaire developed for this purpose with already described items. Results are presented in tables.

This study was approved by the Ethics and Research Committee, Universidade de Taubaté (CEP/UNITAU 1.188.155).

RESULTS

Table 1 shows the profile of studied population with regard to gender, age, physical activity and extracurriculum activities, being that in this latter item students could tick more than one box.

Table 1. Characteristics of studied population

Items	n	%
Age group (years)		
18 to 20	127	32.15
21 to 25	217	54.93
26 to 30	51	12.91
Gender		
Male	142	35.94
Female	253	64.05
Extracurriculum activity		
No activity	106	26.83
Trainee	24	6.07
Job	13	3.29
Research	56	14.17
Academic leagues	323	81.77
Others	22	5.56
Physical activity		
Yes	302	76.45
No	93	23.54
Total participants	395	100

Table 2. Pain prevalence in medical course grades

Grade	Yes	No	Chronic pain (%)
1st	64	56	34 (28.3)
2nd	58	36	36 (38.2)
3rd	29	26	17 (30.9)
4th	28	36	23 (35.9)
5th	24	8	20 (62.5)
6th	16	14	11 (36.6)
Total	219	176	141 (35.7)

Tables 2, 3, 4 and 5 show, respectively, pain prevalence in the whole studied population; CP prevalence distributed by gender in different medical course grades; triggering factors and use of painkillers; and CP location.
Mean McGill questionnaire values among groups and also individually per group, in each parameter (sensory, affective, evaluative and miscellaneous) are shown in table 6.

Table 3. Prevalence of chronic pain by gender in medical course grades

Grade	Gender	
	Male (%)	Female (%)
1st	3 (8.8)	31 (91.2)
2nd	8 (22.2)	28 (77.8)
3rd	6 (35.3)	11 (64.7)
4th	5 (21.7)	18 (78.3)
5th	11 (55.0)	9 (45%)
6th	4 (36.4)	7 (63.6)
Total	37 (23.2)	104 (73.8)

Table 4. Drugs against chronic pain

Drugs	
Yes	64 (45.4%)
No	77 (54.6)

Table 5. Body region affected by pain lasting more than six months

Pain site	n	%
Lumbar, sacrum & coccyx	59	23.13
Knee	34	13.33
Head, face & mouth	30	11.76
Chest	23	9.01
Shoulder & arm	22	8.62
Cervical region	21	8.23
Thigh	14	5.49
Ankle & foot	12	4.70
Pelvic region	9	3.52
Leg	8	3.13
Wrist & hand	6	2.35
Abdomen	6	2.35
Thoracic	5	1.96
Elbow & forearm	5	1.96
Widespread pain	1	0.39

DISCUSSION

In our study, from 395 interviewed students, 141 (35.69%) have referred CP, defined as pain lasting for more than six months. Among grades, there has been more frequency on the fifth grade, with 62.5%, well above mean, being that the first grade had the lowest frequency, with 28.3% of students and similar to findings of a study by Harstall & Ospina[8], grouping 13 studies on the prevalence of CP where pain variation among general population was 10.1 to 55.2%.
Kreling, Cruz & Pimenta[9] have evaluated the prevalence of CP in 505 adults aged between 22 and 65 years, employees of the Universidade Estadual de Londrina, and have found 61.4% of respondents with pain for more than six months.
A study by Silva et al.[2] involving 211 nursing students of the Universidade Federal de Goiás, aged between 22 and 29 years, has found CP in 59.7% of them, that is, above our findings.
When correlating pain frequency and gender, our study has shown results similar to the literature[10], pointing to higher frequency among females and similar to a review by Verhaak et al.[11] involving seven studies which have found more frequent pain among females, with just two studies showing similar prevalence of CP among males and females.
In our study, higher prevalence of CP was found among females, with 73.8% of studied population. However, when evaluating female participants, its frequency was 104 participants, or 41.1%, while in the male population if was 37 participants, or 26.1%, similar to results of four studies present in the literature review of Harstall & Ospina[8] which have found prevalence values, among males and females, of 39.6% (variation: 13.4 to 55.5%) and 31% (variation: 9.1 to 54.9%), respectively.
In search for explanations for such results, investigators have stressed the influence of constitutional, endocrine, cultural and lifestyle-related factors in the predominance of pain in females, pointing to the variation of some types of pain during the menstrual cycle[12].
As to most frequent pain location, general studies point to headache and low back pain as major sites, results which are not consistent with our study since major sites were, respectively: low back, knees and head[2,9,13-16].
According to Cordeiro et al.[15], among CP presentations, musculoskeletal pain was the most common diagnosis, being low back pain the most prevalent musculoskeletal pain with 5.12%.

Table 6. Mean of McGill questionnaire values scored b chronic pain participants in each parameter

	Pain index in series of course						
Dimension	1st	2nd	3rd	4th	5th	6th	Total
Sensory	12.87	13.77	12.94	13.52	11.53	9.24	12.31
Affective	2.99	3.39	4	3.36	2.13	2.58	3.07
Evaluative	2.71	2.75	2.52	2.14	2.55	1.91	2.43
Miscellaneous	4.67	3.84	4.94	3.52	2.65	3.22	3.80

Studies in Brazilian universities[2,13] have found more frequency of headache with regard to low back pain, differently from our study. When tabulating current study results, there has been higher CP frequency in medical students in low back, sacral and coccygeal regions, with 23.13%, followed by knee pain with 13.33% and head, mouth and face with 11.76%. Such data lead us to think about the possible relationship with overload imposed to low back muscles, due to long periods of curriculum activities present in the complete course, which are often associated to incorrect body position.

When it comes to drugs for CP patients, literature has shown a high percentage of use, such as in the studies by Loduca et al.[17] with 85% and Dellaroza et al.[18] with 80.4% although other studies question the adherence to pharmacological treatment of CP patients. Kurita & Pimenta[19,20] have carried out two different studies involving CP patients and have found variations of 40 to 56.7% and of 43.3 to 56.7% with regard to adherence to pharmacological treatment. In our study, 45.39% of medical CP students used analgesics.

In analyzing each grade separately in search for a pattern for the use of drugs, it was noticed that values have varied between 41.17 and 54.50%, except for the fourth grade where most CP students (65.21%) have not reported using any painkiller.

After comparative analysis of McGill pain questionnaire, there has been no increasing or decreasing linearity of pain index values in the four major evaluated groups: sensory, affective, evaluative and miscellaneous.

Results have shown low prevalence as compared to Brazilian studies both in populations with different ages or even studies with college populations. However, prevalence was similar to the mean found by a review carried out by Harstall & Ospina[8]. With regard to pain location, there might be relationship between the long period of curriculum activities of a complete course and possible incorrect body posture, with higher prevalence of low back pain.

Information were not crossed to characterize the profile of CP students, which would have been interesting to measure risk and identify the exposed population.

Although our study has reached the objective of characterizing CP among medical students, other studies with similar populations should confirm our results to propose the development of programs aiming at fighting this problem affecting population since the university.

CONCLUSION

CP was more prevalent among females. With regard to pain location, low back, sacrum and coccyx regions were the most prevalent.

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