



Main Painful Complains among Physiotherapy Students Due to Arduous Course: A Cross Sectional Survey

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Aims: To analyze the main pain complaints among physiotherapy students at UnirG University, in order to understand the triggering factors and develop health promotion strategies that improve the well-being and quality of life of these students.

Study Design: This study consisted of a descriptive field research, with a cross-sectional design and a qualitative-quantitative approach.

Place and Duration of Study: Conducted from March 2024 to April 2024.

Methodology: The sample consisted of 131 of the 202 students enrolled in the undergraduate program from the first to the tenth period, of both sexes, in the Physical Therapy course at the University of Gurupi-TO (UnirG). A questionnaire with 22 questions formulated in an objective and easy-to-understand manner was used. Data collection took place digitally, using Google Forms.

Results: The results highlighted a high prevalence of musculoskeletal pain, especially in the spine, and a significant proportion of students engaged in prolonged sedentary behaviors. In the periods where the students were in supervised clinical internship, such as the ninth and tenth periods, the number of university students complaining of some painful condition presented a higher number, represented with 83.33% equally.

Conclusion: These findings contribute to a better understanding of the challenges faced by physiotherapy students regarding musculoskeletal health and highlight the importance of preventive strategies to promote physical and mental well-being.

Keywords: *Musculoskeletal health; physiotherapy students; musculoskeletal pain; sedentary behavior.*

ABBREVIATIONS

N : Number of Respondents

VAS : Visual Analogue Scale

1. INTRODUCTION

Pain is a complex experience, both sensory and emotional, often associated with actual or potential tissue damage, as defined by the International Association for the Study of Pain (IASP) in 1979. This definition has become widely accepted among scholars and health professionals around the world, and has been adopted by organizations such as the World Health Organization and various governmental and non-governmental entities [1].

In the Brazilian context, musculoskeletal pain (MSD) has affected a significant number of individuals, with approximately 27 million adult Brazilians suffering from this type of pain [2]. This type of pain has become increasingly prevalent in both work and academic settings, due to factors such as poor posture, excess weight, and repetitive actions.

Particularly among university students, the prevalence of MSD is alarming, reaching up to 87% in Brazil [3]. This scenario is especially notable among healthcare students, who often face challenging working conditions during internships and hands-on activities.

Recent studies, such as the one conducted by the University of Pará, have highlighted the high incidence of musculoskeletal complaints among university students, specifically those in the physiotherapy course. For example, they identified a significant prevalence of neck pain, shoulder pain, and chest pain among study participants [4].

The increase in musculoskeletal complaints not only impacts the quality of life of affected individuals, but also poses a challenge to occupational and academic settings. It is estimated that about 70% of the world's population will experience pain at some point in their lives, making these health issues a global concern [5].

In the specific context of the physiotherapy course, the physical and mental challenges faced

by students are exacerbated by the extensive and demanding nature of the curriculum [6]. Frequent use of electronic devices, such as cell phones and laptops, also contributes to the development of MSD due to poor postures and repetitive movements.

In addition, studies have observed that physical therapy students in more advanced stages of the course tend to report a higher prevalence of back pain, evidencing the need to identify and address the factors that contribute to these conditions among students [3].

Considering this context, this study aims to analyze the main pain complaints among physical therapy students at UnirG University, in order to understand the triggering factors and develop health promotion strategies that improve the well-being and quality of life of these students.

2. MATERIALS AND METHODS

This study consisted of a descriptive field research, with a cross-sectional design and a qualitative-quantitative approach, conducted from March 2024 to April 2024. The sample consisted of 131 of the 202 students enrolled in the undergraduate program from the first to the tenth period, of both sexes, in the Physical Therapy course at the University of Gurupi-TO (UnirG).

For data collection, a questionnaire with 22 questions formulated in an objective and easy-to-understand manner was used. Data collection took place digitally, using Google Forms.

Participants received a link to a form on Google Forms, sent by the person responsible for the research through an institutional social network (Whatsapp), containing instructions and recommendations for filling it out. All volunteer participants in this study were asked to digitally sign a Free and Informed Consent Form, according to resolution 466/2012 of the National Health Council, along with the questionnaire, in which they could agree or not to participate in the research. Participants were informed about the purpose of the research and the procedures to which they would be submitted before signing the term.

The inclusion criteria were students regularly enrolled from the first to the tenth semester of undergraduate studies in physical therapy at the University of Gurupi – UnirG. Exclusion criteria

included students who did not agree with the Informed Consent Form, as well as those who had incomplete completion of the questionnaire. Academics who were on temporary leave from the institution during the collection period were also excluded.

The risks associated with the research were classified as minimal, as established by resolution 466/2012. The participants were not exposed to risks related to the dissemination of their images, since the main form of identification was through age, gender and graduation period. Participants were informed about the possibility of contacting the person responsible for the research in case of discomfort, embarrassment or stress during their participation.

The benefits of the study included raising students' awareness of the importance of maintaining a healthy lifestyle during academic life, as well as the possibility of developing means and protocols to prevent musculoskeletal pain and health education.

After the completion of data collection, the information was exported and prepared for statistical analysis using Microsoft Excel. The percentages were calculated based on the number of interviewees (n=131) in relation to the total number of students enrolled in the physical therapy course (n=202).

The data were presented quantitatively and analyzed through descriptive statistics, using graphs and tables to illustrate the main trends and demographic characteristics of the participants. After the conclusion of the analysis, feedback to the research subjects was carried out via social networks, providing feedback on the results obtained and ensuring the transparency of the research process.

3. RESULTS AND DISCUSSION

The research began by recognizing participants through demographic data that revealed a diverse distribution in relation to gender, age, and graduation period. The majority of respondents were female, representing 68.7% of the total, while male respondents comprised 31.3%. Regarding the age group, most participants were between 18 and 25 years old (86.3%), followed by a smaller proportion in the age groups of 26 to 30 years (7.6%) and 30 to 40 years old (6.1%). Regarding the undergraduate period, there was a varied distribution, with the

highest number of participants enrolled in the 10th period (16.0%), followed by those in the 3rd period (15.3%) and 5th period (15.3%). On the other hand, the periods with the lowest representation were the 8th period, with only 1.5% of the participants, and the 2nd period, with 6.1% (Table 1).

A total of 131 students were interviewed, out of a total of 202 enrolled in the Physical Therapy course, in this way the percentage of demographic data corresponding to the total was presented, to validate the study data and present that research was carried out in a significant sample. These results highlight the diversity of the participants in terms of demographic characteristics and stage of physical therapy graduation, as shown in Table 1.

Also, for data from the analysis of the habits of our interviewees, Fig. 1 represents the responses of the participants in relation to the regular practice of physical activities outside the academic environment. Of the 131 participants interviewed, 52.67% reported practicing physical activity regularly, while 47.33% said they did not. These data suggest that approximately half of physiotherapy students at UnirG University are engaged in regular physical activity outside of the academic context.

We know that regular physical activity is essential to promote the physical and mental health and well-being of individuals, especially in academic contexts where a sedentary lifestyle may be more prevalent. According to Hallal et al.

[7], lack of physical activity is a significant risk factor for the development of chronic diseases, such as cardiovascular diseases, type 2 diabetes, and obesity. Therefore, understanding the physical activity habits of physical therapy students can provide important insights into their health and quality of life.

Regular physical activity, defined as at least 150 minutes per week, outside of the academic setting, not only contributes to physical health, but can also have psychological benefits, such as reducing stress and improving mood. In addition, regular physical activity can help prevent musculoskeletal injuries, which is relevant for physical therapy students who are exposed to intense physical demands during their training and professional practice [8].

As we continue the research, as shown in Table 2, which presents a variety of data related to the experience of pain among the interviewees, including the prevalence of pain, types of pain, anatomical locations, pain intensity measured by the Visual Analogue Scale (VAS) and the impact of pain on academic performance.

The results indicate that the vast majority of respondents, 84%, reported feeling pain at some point. Regarding the types of pain, localized pain was the most common, reported by 77.90% of the participants, followed by pain with burning sensation (10.70%) and generalized pain (6.90%). In terms of anatomical location, the spine was the most frequently affected area (53.40%), followed by the lower limbs (22.10%)

Table 1. Dados demográficos

Gender	Interviewed	% n=131	% n=202
Female	90	68,7%	44,55%
Male	41	31,3%	20,29%
Age	Interviewed	% n=131	% n=202
18 - 25 Years	113	86,3%	55,94%
26- 30 Years	10	7,6%	4,95%
30- 40 Years	8	6,1%	3,96%
Period	Interviewed	% n=131	% n=202
1° period	14	10,7%	6,94%
2° period	8	6,1%	3,96%
3° period	20	15,3%	9,90%
4° period	9	6,9%	4,45%
5° period	20	15,3%	9,90%
6° period	13	9,9%	6,43%
7° period	9	6,9%	4,45%
8° period	2	1,5%	0,99%
9° period	15	11,5%	7,42%
10° period	21	16,0%	10,40%

*Source: Primary data (2024)

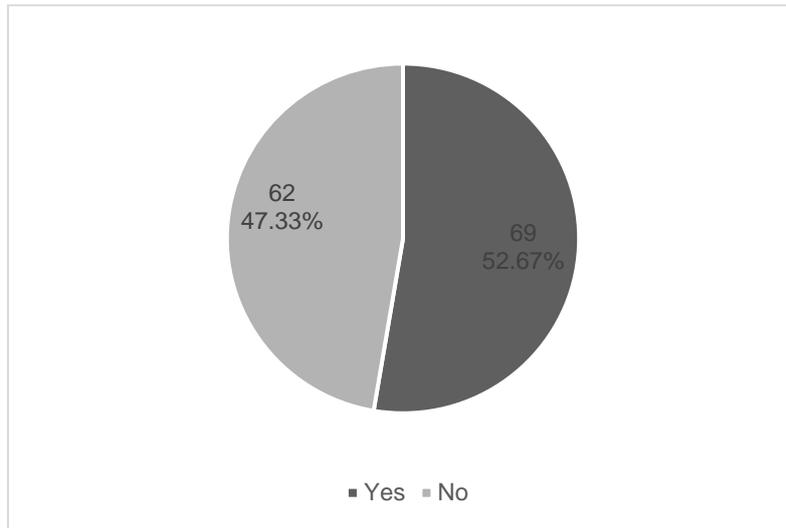


Fig. 1. Regular Weekly Practice of Physical Activity

**Source: Primary data (2024)*

Table 2. Prevalence and Characteristics of Pain among Interviewees

Pain	Interviewed	% n=131
Yes	110	84%
No	21	16%
Pain type	Interviewed	% n=131
Located	102	77,90%
Burning sensation	14	10,70%
Generalized	9	6,90%
Diffuse	6	4,60%
Anatomical Location	Interviewed	% n=131
Upper limbs	24	18,30%
Lower limbs	29	22,10%
Spine	70	53,40%
Skull	8	6,10%
Pain Scale VAS	Interviewed	% n=131
1	8	6,10%
2	8	6,10%
3	16	12,20%
4	19	14,50%
5	29	22,10%
6	20	15,30%
7	20	15,30%
8	9	6,90%
9	2	1,50%
10	-	-
Pain affects academic performance	Interviewed	% n=131
Yes	48	36,60%
No	83	63,40%

**Source: Primary data (2024)*

and upper limbs (18.30%). Pain intensity varied on the Visual Analogue Scale (VAS), with a distribution ranging from 1 to 9, with a predominance of scores between 5 and 7 (Table 2).

A worrisome aspect is that 36.60% of the interviewees reported that pain affects their academic performance, as shown in Table 2. This correlation between pain and academic achievement highlights the importance of

properly addressing and managing pain among physical therapy students.

Recent studies of the literature have emphasized the relevance of musculoskeletal pain among college students and its impact on health and academic performance. For example, a study conducted by Gatchel et al. [9] highlighted that musculoskeletal pain can significantly interfere with students' daily activities and academic performance. In addition, a study conducted by Smith et al. [10] highlighted the importance of musculoskeletal pain prevention and management strategies to improve students' quality of life and academic effectiveness. Similarly, the study by Jones et al. [11] highlighted the need for multifaceted approaches to deal with musculoskeletal pain among students, including physical, psychological, and educational interventions.

These studies underscore the importance of understanding and addressing musculoskeletal pain among college students, especially those who are preparing for a career in healthcare, such as physical therapy. Early recognition and effective management of pain can not only improve students' quality of life but also promote a healthier and more productive academic environment.

When asked about how often participants experience painful complaints. Of the 131

respondents, most reported experiencing pain with significant frequency. Specifically, 39.70% reported experiencing pain weekly, while 35.90% of participants reported experiencing pain daily. A smaller portion of the interviewees, 16%, reported feeling pain rarely, and 8.40% reported feeling pain monthly, as can be seen in Fig. 2.

A recent examination of the frequency of musculoskeletal pain among university students was conducted by Rodrigues et al. [12], revealing a significant prevalence and a considerable impact on students' daily lives. This epidemiological study provided data on the frequency of pain and its ramifications among this specific population [7]. At the same time, Boonstra et al. [13] investigated the cut-off points to classify pain intensity in patients with chronic musculoskeletal pain, highlighting the variability of this experience and the influence of factors such as gender and catastrophizing [13].

This information corroborates with data highlighting the frequent and persistent nature of pain among physiotherapy students at UnirG University, which can have significant implications on their quality of life, well-being, and academic performance. The fact that a substantial proportion of participants report experiencing pain on a daily or weekly basis underscores the importance of effective interventions for pain management and health promotion within the university community.

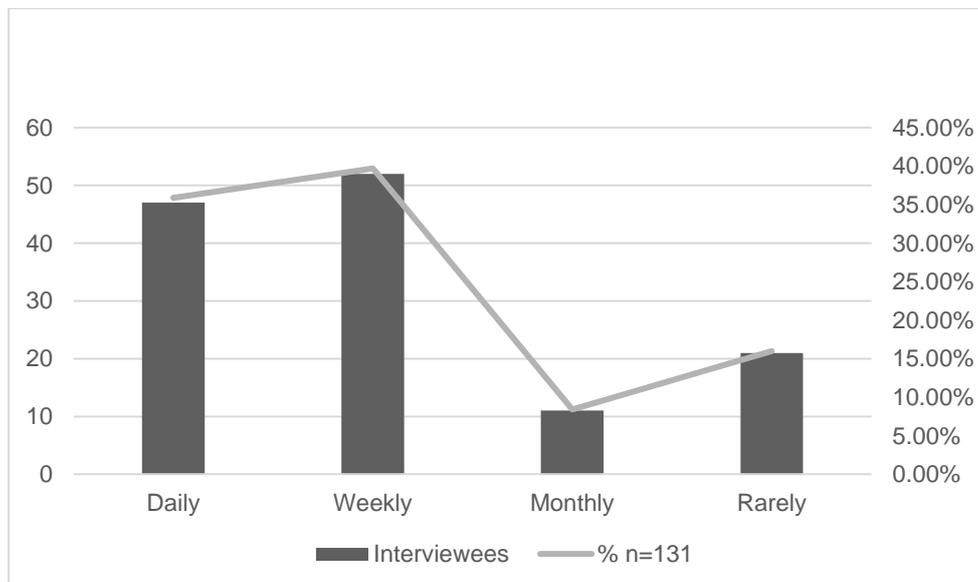


Fig. 2. Frequency of Pain

*Source: Primary data (2024)

Considering the previous information on the prevalence and characteristics of pain among the interviewees, we observed that a minority of the participants reported having received a closed diagnosis of injury, with only 7.60% claiming to have a defined diagnosis. Among the reported cases, conditions such as grade 1 anterolithesis, scoliosis, disc protrusion, disc herniation, and patellar tendinitis stand out (Fig. 3). In addition, a very small portion of the interviewees stated that they had a congenital disease, representing only 2.3% of the total sample, with Klippel Feil syndrome and operated congenital clubfoot being mentioned among the reported cases. This additional information on diagnoses and congenital conditions offers a more complete picture of respondents' musculoskeletal health, highlighting the complexity and diversity of individual experiences related to pain and injuries in this group of physiotherapy students.

Continuing the analysis of pain management strategies among participants, Fig. 3 shows the use of different types of pain relief medications. Of the interviewees, 20.8% reported using analgesics, while 15.4% used anti-inflammatories and 29.8% used muscle relaxants. These numbers reflect how often participants turn to different types of medications to deal with musculoskeletal pain. Analysis of these data provides insights into patterns of pain management medication utilization among participants, highlighting the need to consider

multiple pain management strategies to meet individual student needs.

As seen during the presentation of diagnostic data, we noted that there is a possible practice of self-medication, especially among university students, which has been the subject of increasing concern due to its potential health risks. Recent studies, such as those conducted by Monteiro & Brandão [14] and Sousa et al. [15], highlight that many students resort to self-medication, particularly when it comes to pain relief, due to the lack of an accurate diagnosis or medical guidance. This trend is worrisome, as it can lead to inappropriate use of medications and potential health complications [14,15].

The research by Pimentel and Souza [16] amplifies this concern by revealing that self-medication is influenced by a number of factors, including easy access to medications, lack of knowledge about their side effects, and the desire to self-manipulate symptoms. For physiotherapy students, who often deal with musculoskeletal pain without a clear diagnosis, the temptation to resort to self-medication can be even greater. However, it is essential to recognize the risks associated with this practice and to promote awareness of the importance of seeking appropriate medical advice for pain management, aiming not only at immediate relief but also at preserving long-term health.

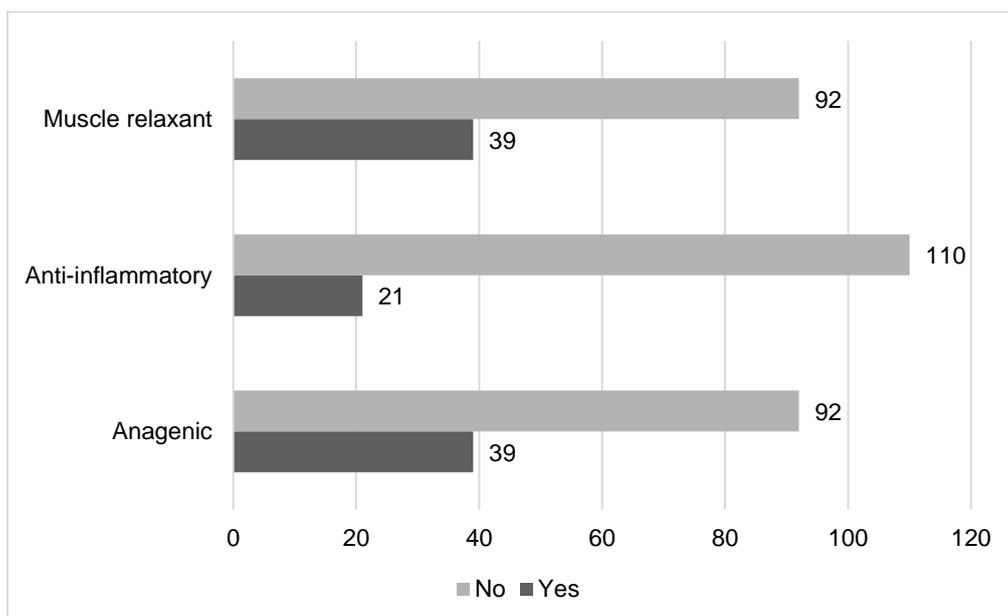


Fig. 3. Use of Medications

*Source: Primary data (2024)

The data presented in Fig. 4 reveal worrying patterns of sedentary behavior among physiotherapy students at UnirG University, with a significant proportion reporting remaining seated for prolonged periods. This trend is especially relevant considering the evidence provided by studies, such as the one by O'Sullivan et al. [17], which highlight the adverse effects of prolonged sitting on musculoskeletal health, including the increased risk of developing low back pain and other related conditions.

variety of durations are observed, with 29% of respondents reporting remaining in standing for one hour, followed by 16.80% for two hours and 11.50% for three hours. In addition, 20.60% of the participants indicated that they remained in standing for five hours or more.

Coenen et al. [18] conducted a systematic review of laboratory studies to investigate the associations between prolonged time in the standing position and musculoskeletal symptoms. They found evidence that prolonged periods of standing are associated with the development of musculoskeletal symptoms such

Fig. 5 presents data on the length of stay in standing among the research participants. A

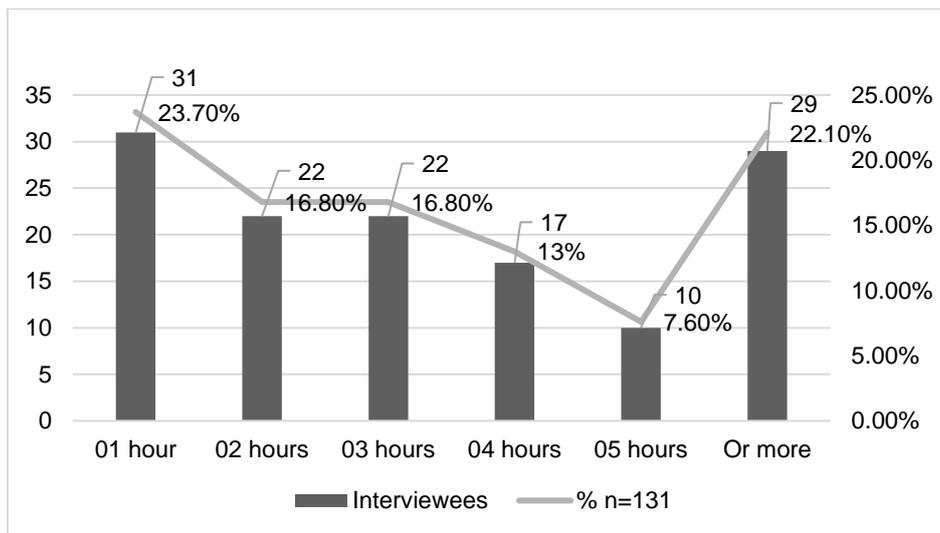


Fig. 4. Sedation Length of Stay
*Source: Primary data (2024)

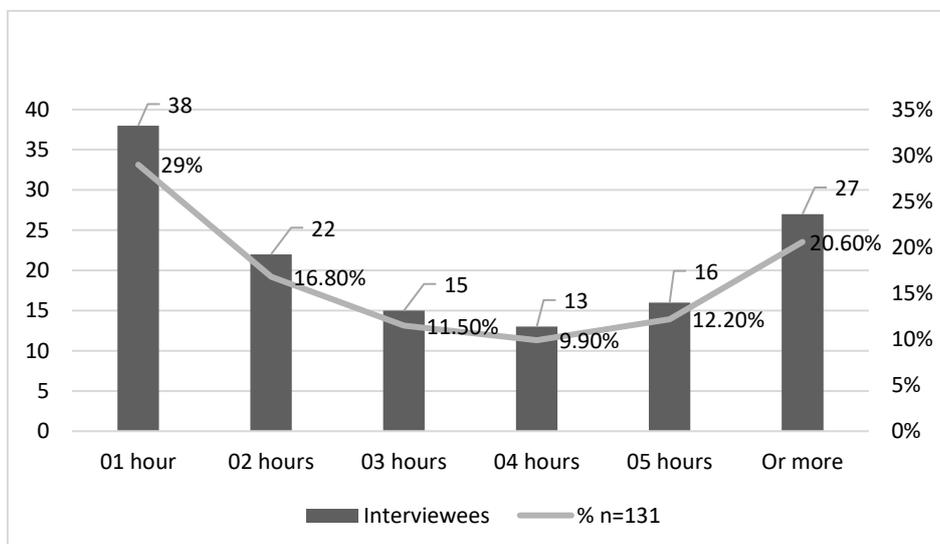


Fig. 5. Length of Stay in Orthostatism
*Source: Primary data (2024)

Table 3. Prevalence of pain by period of the physiotherapy course

Period	Total Enrolment	Yes	%	No	%
1° period	40	14	35%	1	2,50%
2° period	14	4	28,57%	4	28,57%
3° period	22	16	72,73%	4	18,18%
4° period	12	9	75%	1	8,33%
5° period	19	15	78,95%	6	31,58%
6° period	20	12	60%	1	5%
7° period	26	8	30,77%	1	3,85%
8° period	7	1	14,28%	1	14,28%
9° period	18	15	83,33%	0	0%
10° period	24	20	83,33%	1	4,16%

**Source: Primary data (2024)*

as low back pain and muscle fatigue. This author provides important data on the potential health risks associated with prolonged standing, highlighting the importance of strategies to minimize these adverse effects, especially in academic and professional environments where standing time is common [18].

Finally, Table 3 shows the percentage distribution of the interviewees according to the periods of the course and whether they reported feeling pain in any part of the body. The data reveal that the prevalence of pain varies significantly between the different periods of the physiotherapy course. The third, fourth, and fifth periods showed a high percentage of students who reported experiencing pain at some point, 72.73%, 75%, and 78.95%, respectively. In addition, there is an upward trend in the prevalence of pain as the periods progress. In the periods where the students were in supervised clinical internship, such as the ninth and tenth periods, the number of university students complaining of some painful condition presented a higher number, represented with 83.33% equally. This suggests that the physical and emotional stress associated with clinical activities may contribute to the increased incidence of pain among physical therapy students as they advance in their course [3,4].

Throughout this research, several aspects related to musculoskeletal conditions and lifestyle habits of physiotherapy students at UnirG University were analyzed. The results revealed a significant prevalence of pain complaints, especially localized pain in the spine, in addition to a considerable proportion of participants who reported feeling pain daily or weekly. These findings highlight the importance of addressing these issues

proactively, implementing health promotion and injury prevention strategies, both in the academic environment and in students' daily lives [19].

In addition, the data also pointed to worrying patterns of sedentary and standing behaviors among participants, with a significant portion reporting sitting or standing for long periods [20]. These habits may be associated with a higher risk of developing musculoskeletal pain and other health conditions, highlighting the importance of promoting awareness of the importance of movement and proper posture.

Finally, it is crucial to recognize the need for effective interventions to address these issues and improve the well-being of physical therapy students. Strategies that encourage the regular practice of physical activities, promote the adoption of ergonomic postures, and offer support for adequate pain management are essential to ensure not only physical health, but also academic success and quality of life of these individuals. By implementing preventive and educational approaches, it is possible to create a healthier and more supportive environment for the personal and professional development of physical therapy students [21].

4. CONCLUSION

Comprehensive analysis of demographics, physical activity habits, pain prevalence and characteristics, pain management strategies, sedentary behaviors, sedation, and standing among physiotherapy students at UnirG University revealed data on the musculoskeletal health and general well-being of these individuals.

First, the results highlighted significant diversity among participants in terms of gender, age, and

undergraduate stage, providing a solid basis for representing the population studied. In addition, the analysis of physical activity habits revealed that approximately half of students regularly engage in physical activity outside of the academic environment, which is critical to promoting physical and mental health.

However, the data also pointed to significant concerns related to musculoskeletal pain. A substantial proportion of respondents reported experiencing pain at some point, with the spine being the most affected area. The intensity of the pain varied, but a considerable portion of the participants indicated that the pain affects their academic performance. This correlation between pain and performance underscores the pressing need to adequately address and manage pain among physical therapy students.

However, this research also identified gaps that deserve future attention. Longitudinal studies are needed to better understand the evolution of pain complaints over time and to investigate the effectiveness of specific interventions to prevent and treat musculoskeletal problems in university students.

All in all, this study provides important data on the musculoskeletal health of physiotherapy students, highlighting the importance of preventive and educational approaches to promote the physical and mental well-being of these individuals.

CONSENT

Each participant was invited to participate in the research and digitally sign the free and informed consent form before proceeding

ETHICAL APPROVAL

The study protocol strictly followed the ethical guidelines and was submitted for approval by the human research ethics committee of the university of gurupi-to.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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