

**Breaking the Pain Barrier:**  
**Analysis of Physical Therapy and Painkillers in Managing Chronic Pain among ECU Students**

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## **Introduction**

Chronic pain among students in college is often an overlooked problem. Chronic pain can be defined as persistent pain that usually lasts longer than 3 months (2). It can be caused by numerous underlying interdependent sets of bio-psycho-social factors. A trend that could be transitive across the world. A study in Norway reported that “54% of students reported chronic pain in at least one location” (1). Persistent pain can prove to be detrimental to a student’s academic career and social life. It can often act as a distraction and cause an inability to perform specific activities. Something that is often overlooked is the high costs associated with the treatment of the underlying cause. Ignoring the pain that consistently returns can lead to a poor quality of life for their undergraduate career and their future. A cross-sectional study done on undergraduate students showed that “79.2% experienced bodily pain within 6 months of the study (3).” Pain prevalence can differ between different genders and can have varying methods for pain management.

The two methods for pain management are often, pharmacological, nonpharmacological, or some sort of combination therapy. Non-pharmacological examples of combination therapy can include physical activity (aerobic conditioning, muscle strengthening, flexibility training, and movement therapies) (4). Multiple studies have shown there are direct benefits associated with exercise to help deal with chronic pain. Physical therapy can provide relief by helping to address the underlying cause of the pain. Having a consistent therapy schedule can help negate the persistence of chronic pain (4). It can help target the root of the pain instead of just targeting the pain associated with the cause. Typically, these services are often expensive and are not feasible for students to take advantage of regularly.

Painkillers are often used as a standalone option for pain management or in conjunction with some sort of physical recovery method. Students with chronic pain are more likely to use “analgesics and alcohol” (5). It can often seem like a quick and easy solution to help ease the pain for a short duration of time. It should be noted that students can often become reliant on these analgesics which are often used as a “self-medication” practice. An article exploring self-medication practices among nursing undergraduate students with analgesics showed that “Acetaminophen was the highest used drug for analgesic purposes (6).” It is common practice to take over-the-counter medication to help deal with persistent pain. It is considered socially acceptable, but they are widely misunderstood. Overuse of these medications can cause liver damage, stomach bleeding, and kidney disease (7)

The study aims to investigate pain relief practices among ECU students, specifically focusing on physical therapy as a non-pharmacological alternative. The needs assessment determined the prevalence of chronic pain and the demand for physical therapy on campus. The study aimed to

increase awareness of physical therapy and decrease the reliance on pain medications, ultimately promoting better pain management and enhancing student health and well-being.

## **Methods**

The study was done between June 2022 and March 2023. The research protocol was peer-reviewed by faculty mentor Dr. Bhibha Das. The research protocol was approved by the Institutional Review Board of East Carolina University. The participants were recruited through various digital marketing. An online flyer was posted on social media platforms on various healthcare clubs like MAPS, Medlife, and HealthDemic. Another source of recruitment involved reaching out to Kinesiology classes and requesting their student's participation in a quick survey. A listserv was sent out to honors students at East Carolina University with an attached hyperlink to the survey. The inclusion criteria for the study consisted of 18+ years of age and had to be undergraduate students at East Carolina University. Participants were informed that the survey would remain completely anonymous and include no identifying information.

At the beginning of the survey demographic information was collected. The short International Physical Activity Questionnaire was used to collect information regarding the frequency of physical activity. It is known to be a standardized self-reporting survey and has been vastly used in research. The physical therapy questionnaire was used to find out if they had surgery and if they have been undergoing physical therapy to help ease their pain symptoms. In conjunction with the physical therapy questionnaire, the PROMIS pain inventory was used to get an accurate measure of their current pain. In addition, the PROMIS pain inventory helps get a measure of pain for the previous 7 days. There was also a measure for the intensity of pain as part of the PROMIS pain inventory.

Data analysis was done through the Qualtrics using crosstabs iQ. By formulating the correlation Coefficients, the p-value was calculated to find the significance of the actual observed results. SPSS was used to create a codebook for the data to outline the data used in this qualitative study. Using Qualtrics, tables were created to show the various data points as well.

The topic of Interest	Instrument	Outcome
Physical Activity	<ul style="list-style-type: none"> <li>- PROMIS Pain Inventory</li> <li>- International Physical Activity Questionnaire</li> </ul>	Decrease pain and measure physical activity
Demographics	<ul style="list-style-type: none"> <li>- Generic</li> </ul>	Gather background information on ECU students
Physical Therapy	<ul style="list-style-type: none"> <li>- Physical Therapy Questionnaire</li> </ul>	<ul style="list-style-type: none"> <li>- Measure correlation between the chief complainant and goals for therapy</li> </ul>

Table 1: Study Measures

## **Results**

### *Population*

The study population consisted of 50 undergraduate students who attended East Carolina University. The population consisted of 50% female, 22% male, and 6% non-binary/third gender.

Gender	Count	Percentage
Male	11	22%
Female	25	50%
Non-binary / third gender	3	6%
Transgender female	0	0%
Transgender male	0	0%
Prefer to self-describe	0	0%
Prefer not to say	0	
Total Count (All)	50	

Table 2: Gender Spread

The average age of the population was  $21.3 \pm 4.3$  years. The race of the subjects was 46% White, 18% Asian, 6% African American, and 6% classified as other. The sexual orientation of the participants was 54% heterosexual, 10% bisexual, 4% pansexual, 4% asexual, 2% were homosexual, and 2% preferred to self-describe.

Sexual Orientation	Count	Percentage
Heterosexual	27	54%
Homosexual	1	2%
Bisexual	5	10%
Pansexual	2	4%
Asexual	2	4%
Prefer to self-describe	1	2%
Prefer not to say	0	0%
Total Count (All)	50	

*Table 3: Sexual Orientation Spread*

Out of the 50 respondents, 64% did not identify as an athlete, and 12% identified as an athlete. Of all the participants, 68% were not in a Greek Chapter, 4% were currently or previously part of a Greek Chapter, 2% were currently or previously part of the Black Greek Letter Organization (BGLO) Sorority [ National Pan-Hellenic (NPHC)], and 2% were currently or previously part of an Intercultural Greek Council (IGC) chapter.

Greek Chapter Membership	Count	Percentage
Not in a Greek Chapter	34	68%
Currently or was in a Greek Sorority Chapter	2	4%
Currently or was in a National Pan-Hellenic (NPHC) Chapter	1	2%
Currently or was in an Interfraternity Council (IFC) Chapter	1	2%
Total Count (All)	50	

*Table 4: Greek Chapter Membership Spread*

The annual household income of the population was, 30% with an income greater than \$75,000, 18% with an income less than \$15,999, 14% chose not to report or were unaware of their household income, 8% with an income between \$16,000 and \$24,999, 4% with an income between \$50,000 and \$74,999, and 2% with an income between \$25,000 and \$34,999.

Annual Income	Count	Percentage
< \$15,999	9	18%
\$16,000 to \$24,999	4	8%
\$25,000 to \$34,999	1	2%
\$35,000 to \$49,999	0	0%
\$50,000 to \$74,999	2	4%
\$75,000 and greater	15	30%
Don't know/refused	7	14%
Total Count (All)	50	

*Table 5: Household Income Spread*

	Yes	No
Had no pain	18%	28%
Mild	21%	9%
Moderate	10%	14%
Severe	7%	4%
Very Severe	0%	0%

Table 6: Promis Pain Inventory pain intensity for previous 7 days and use of painkillers

	Total	Strength (e.g., weight lifting, Pilates, body weight training)	Cardio/Aerobic (e.g., running, walking, elliptical, dance, biking, swimming)	Both	None
Total Count (All)	38	1	12	21	4
Had no pain	7	0%	0%	23%	50%
Mild	8	0%	16%	28%	0%
Moderate	4	100%	0%	9%	25%
Severe	3	0%	0%	9%	25%
Very Severe	0	0%	0%	0%	0%

Table 7: Promis Pain Inventory pain intensity for previous 7 days and their participation in various exercises.

	Total Count (All)	Percentage
Medicine	2	4%
Physical Activity	18	36%
Neither	1	2%
Some combination of both	17	34%
Total	50	100%

*Table 8: Preferred method to address pain.*

**Conclusion**

This cross-sectional study explored the pain management strategies and prevalence of chronic pain among East Carolina University undergraduate students. The results from the study shed light on the practices used to address pain among fellow peers and show a need for additional services on campus to help address their chronic pain. Most students (16%) had mild pain on average according to the PROMIS Pain Inventory results. There were more students dealing with some sort of pain intensity than students without any pain. There was also a correlation between the prevalence of pain and their participation in various exercises. This could be due to most various factors such as acute pain, muscle fatigue, soreness, etc. Out of all the students that participated 44.7% of participants reported using painkillers to manage pain. 35.3% of participants used painkillers when dealing with mild pain in comparison to 11.9% who used them when dealing with severe pain. The trend seemed to be reversed among ECU students. There was an expectation that students would be more likely to use painkillers when dealing with higher-intensity pain rather than mild pain. The study found that a significant proportion of participants relied on painkillers for pain management, but nearly half of the participants preferred physical recovery methods.

This study could be replicated at other universities to explore trends in pain management as well as the prevalence of chronic pain among a similar population. This highlights the need for public health education strategies for proper pain management to promote other safe alternatives to analgesics. Promoting the use of physical recovery could improve the overall health of this population. It is important to reverse this trend as this population ages and reaches further into adulthood. Future research directions could include, investigating the reasons why college students prefer physical recovery methods over painkillers. It is also important to see how effective certain physical recovery methods are for pain management. Another direction could include the relationship between regular exercise and the prevalence of chronic pain.



The public health implications of this study could include the implantation of physical recovery sessions and resources for students attending ECU. This could help reverse the trend of painkiller dependence. The opioid crisis has been a long and troubling matter in society. Through a public health intervention based on this assessment we could help spread knowledge pertaining to associated risks of addiction and overdose. Through that, we could help reduce the use of these drugs. Healthy policy and insurance can be a complicated matter for many young students. Treating chronic pain by targeting the underlying cause could help reduce health care costs and increase access to effective treatments for pain.

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