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Impact Of Joint Hypermobility On Quality Of Life And Psychological Well-Being In Paramedical Staff And Students At Uka Tarsadia University: A Cross-Sectional Study

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Abstract

Joint hypermobility refers to the ability of joints to move beyond the normal expected range and is influenced by soft tissue elasticity, muscle tone, bone structure, and joint health. Although joint hypermobility is common, it is often under-recognized in clinical settings. Individuals with generalized joint hypermobility may experience joint instability, musculoskeletal pain, fatigue, functional limitations, and psychological distress, which can affect overall quality of life. The present study aimed to assess the impact of joint hypermobility on quality of life and psychological well-being among paramedical staff and students at Uka Tarsadia University. An observational cross-sectional study was conducted among nursing and physiotherapy students and staff. A total sample of 355 participants was included using convenient sampling. Joint hypermobility was assessed using the Beighton Scale, quality of life using the Short Form-36 (SF-36), and psychological well-being using the Generalized Anxiety Disorder-7 (GAD-7). The results demonstrated that participants with joint hypermobility had lower quality-of-life scores and higher anxiety scores compared to non-hypermobile participants. Nursing students showed a greater prevalence of hypermobility and poorer outcomes than physiotherapy students. Female participants also demonstrated lower quality-of-life scores and higher anxiety levels than males. The study concludes that joint hypermobility has a negative impact on both physical and psychological well-being in paramedical students and staff, highlighting the need for early screening, targeted interventions, and supportive strategies within educational institutions.

Keywords: Joint hypermobility, quality of life, psychological well-being, anxiety, SF-36, GAD-7, Beighton Scale, paramedical students.

I. Introduction

Joint hypermobility refers to the ability of certain joints to move beyond the normal expected range in the general population [1]. Joint flexibility is influenced by multiple factors such as soft tissue elasticity, muscle tone, bone structure, and joint integrity. Increased laxity in ligaments, tendons, and joint capsules may increase movement, whereas lower muscle tone may reduce joint stability [1,2]. Joint hypermobility is prevalent among young adults and students and may lead to musculoskeletal pain, instability, fatigue, and injury [3,4].

Several demographic factors influence hypermobility. Younger individuals generally demonstrate greater flexibility than older adults, females tend to be more flexible than males, and genetic and population differences also influence prevalence [4]. Despite its frequency, joint hypermobility is often overlooked in clinical and educational settings. Individuals with generalized joint hypermobility may present with joint instability, recurrent sprains, musculoskeletal pain, stress fractures, and reduced physical performance [5].

In addition to physical symptoms, hypermobility may affect psychological well-being. Reduced physical function, chronic discomfort, and fatigue may contribute to anxiety, distress, and a decline in health-related quality of life. This issue may be especially important in paramedical students and staff such as those in nursing and physiotherapy, who are often exposed to physical workload, prolonged standing, repetitive movement, and academic stress. However, limited studies have examined the combined effect of joint hypermobility on quality of life and psychological well-being in these groups, particularly in India.

Therefore, the present study was undertaken to investigate the impact of joint hypermobility on quality of life and psychological well-being among paramedical staff and students at Uka Tarsadia University.

II. Need of the Study

Joint hypermobility is characterized by excessive range of motion in joints and frequently remains undiagnosed. It may result in chronic pain, instability, fatigue, and functional limitations. In addition to physical impairments, it has been associated with anxiety, depression, and reduced quality of life. Nursing and physiotherapy students and staff may be particularly vulnerable because of their academic and occupational physical demands. Since limited research is available regarding its impact in these groups, especially in the Indian setting, the present study was needed to explore the relationship between joint hypermobility, quality of life, and psychological well-being at Uka Tarsadia University.

III. Aim of the Study

To assess the impact of joint hypermobility on quality of life and psychological well-being among paramedical staff and students.

IV. Objectives of the Study

1. To determine the prevalence of joint hypermobility among nursing and physiotherapy students and staff.
2. To analyze the association between joint hypermobility and quality of life.
3. To analyze the association between joint hypermobility and psychological well-being.
4. To determine the correlation between quality of life and psychological well-being in individuals with joint hypermobility.
5. To compare the impact of joint hypermobility on quality of life and psychological well-being between nursing and physiotherapy students and staff.
6. To identify gender-based differences in the prevalence and impact of joint hypermobility.

V. Research Question

What is the impact of joint hypermobility on the quality of life and psychological well-being among paramedical staff and students?

VI. Review of Literature

Available literature indicates that joint hypermobility syndrome affects physical function, psychological health, and overall quality of life. Prior studies have established associations between joint hypermobility and anxiety, fatigue, musculoskeletal symptoms, and impaired daily function. The literature also suggests that joint hypermobility is relatively common in young adults and students. However, limited studies have specifically examined students in physically demanding educational programs such as physiotherapy and nursing, and there is a need for targeted strategies to address hypermobility-related physical and psychological challenges in this population.

VII. Materials and Methodology

Study Design

Observational cross-sectional study.

Study Population

Nursing and physiotherapy staff and students.

Source of Data

Staff and students of Uka Tarsadia University, Bardoli-Mahua Road, District Surat, Gujarat, India.

Sample Size

355 participants.

Sampling Method

Convenient sampling.

Inclusion Criteria

- Age group: 18–40 years
- Students and staff from nursing and physiotherapy
- No acute injuries, fractures, or surgeries affecting joint mobility assessment

Exclusion Criteria

- Recent musculoskeletal injury or surgery
- Neurological conditions
- Psychiatric illness
- Pregnancy

Outcome Measures

1. **Beighton Scale:** Used to identify generalized joint hypermobility. A score of 4 or more was used to indicate generalized joint hypermobility [6].
2. **Generalized Anxiety Disorder-7 (GAD-7):** Used to assess anxiety over the previous two weeks. Scores are interpreted as minimal or no anxiety (0–4), mild anxiety (5–9), moderate anxiety (10–14), and severe anxiety (15–21). A score of 10 or above is commonly used as a threshold for clinically relevant anxiety [7].
3. **Short Form-36 (SF-36):** Used to assess quality of life. Each domain is scored from 0 to 100, with higher scores indicating better health status [8].

Procedure

Ethical approval was obtained before initiation of the study. Eligible nursing and physiotherapy students and staff were approached and informed about the purpose, procedures, and confidentiality of the study, after which written informed consent was taken. Demographic details such as age, gender, education or professional status, and medical history were recorded. Joint hypermobility was assessed using the Beighton Score. Quality of life was assessed using SF-36, and psychological well-being was assessed using GAD-7. All data were collected in a structured format and maintained confidentially.

VIII. Statistical Analysis

Data were entered into IBM SPSS version 20.1 for analysis. Descriptive statistics were used for demographic variables, SF-36 scores, GAD-7 scores, and prevalence of hypermobility. Independent t-test was used for comparison of quality-of-life scores between hypermobile and non-hypermobile groups. Mann-Whitney U test was used to compare anxiety scores due to non-normal distribution. Pearson's correlation was used to determine the relationship between quality of life and anxiety among hypermobile participants.

IX. Results

A total of 355 participants from nursing and physiotherapy were included in the study. Descriptive statistics showed that the mean age in the nursing group was 20.45 years with mean BMI of 21.93, whereas the physiotherapy group had mean age 20.96 years and mean BMI 20.67.

Joint hypermobility was more prevalent among nursing students (32.50%) compared to physiotherapy students (26.70%). Participants with joint hypermobility reported significantly lower SF-36 scores, indicating poorer quality of life, in both nursing ($p = 0.002$) and physiotherapy ($p = 0.015$) groups. Hypermobile participants also had significantly higher GAD-7 scores, indicating greater anxiety, in both nursing ($p = 0.001$) and physiotherapy ($p = 0.020$) groups.

A negative correlation was found between SF-36 and GAD-7 scores in individuals with joint hypermobility, suggesting that lower quality of life was associated with higher anxiety. This correlation was stronger in nursing students ($r = -0.412$) than in physiotherapy students ($r = -0.285$).

Gender-based comparison showed that male participants had better quality-of-life scores and lower anxiety compared with females in both groups. Female participants demonstrated lower SF-36 scores and higher GAD-7 scores, suggesting greater impact of hypermobility on physical and psychological well-being.

X. Discussion

The present study demonstrated that joint hypermobility negatively affects both quality of life and psychological well-being among paramedical students and staff. Hypermobile participants showed lower SF-36 scores and higher GAD-7 scores than non-hypermobile individuals, indicating poorer physical and mental health status. These findings are consistent with previous literature linking joint hypermobility with chronic pain, fatigue, reduced function, and psychological distress [1,2].

The study also found that nursing students had poorer outcomes than physiotherapy students. Nursing students showed lower quality of life and higher anxiety, possibly due to greater physical workload and academic demands. Physiotherapy students appeared to cope better, which may be related to their musculoskeletal knowledge and better understanding of body mechanics, symptom management, and functional adaptation.

A negative correlation between quality of life and anxiety was observed in hypermobile individuals, with stronger correlation in nursing students than physiotherapy students. This suggests that reduced physical well-being may be closely associated with greater emotional distress in individuals with hypermobility. The findings support the view that hypermobility should not be considered only a physical trait, but also a condition with broader psychosocial implications [2,7].

Gender-based differences were also evident in the present study, with female participants showing lower quality of life and higher anxiety than males. This aligns with previous evidence suggesting that females have higher prevalence of joint hypermobility and may experience greater musculoskeletal and psychological burden [4]. Overall, the findings emphasize the need for early identification, ergonomic advice, stress management, and supportive intervention programs for hypermobile students and staff in healthcare education.

XI. Conclusion

This study provides evidence that joint hypermobility negatively affects quality of life and psychological well-being, particularly among nursing students. Hypermobile individuals demonstrated poorer SF-36 scores and higher GAD-7 scores compared with non-hypermobile participants. Nursing students and female participants showed greater challenges than physiotherapy students and male participants. The findings highlight the importance of early screening, targeted interventions, and psychological support for hypermobile individuals in paramedical education.

XII. Clinical Implications

Early identification programs within healthcare education can help recognize hypermobile students and staff who may benefit from timely intervention. Ergonomic modifications, workload adjustments, musculoskeletal screening, and integrated rehabilitation strategies involving physiotherapists and mental health professionals may improve both physical and psychological outcomes. Increased awareness among educators and students may also support better long-term academic and professional functioning.

XIII. Limitations of the Study

- The study was conducted in a specific population of healthcare students and staff, which may limit generalizability.
- The cross-sectional design does not allow evaluation of long-term effects of joint hypermobility on quality of life and psychological well-being.

XIV. Future Recommendations

- Longitudinal studies should be conducted to investigate long-term effects of hypermobility on professional performance and well-being.
- Research should be expanded to other healthcare professions such as doctors and paramedics.
- Intervention-based studies should be performed to evaluate physical therapy, ergonomic education, and mental health strategies for hypermobile individuals.

XV. Acknowledgment

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