



PERCEPTION OF FINAL YEAR BPT STUDENTS OF GUJARAT REGARDING ADULT SPINAL DEFORMITY.

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Background: Adult spinal deformity (ASD) can significantly impact an individual's quality of life, leading to pain, functional impairment, and in severe cases, neurological complications. The complex nature of adult spinal deformities requires a multidisciplinary approach to diagnosis and management, involving orthopedic surgeons, neurosurgeons, pain specialists, and physical therapists.

Methodology: In this study, Google form was sent to 54 physiotherapy institutes in Gujarat with 2418 final year students. We received 345 responses, surpassing the required sample size of 332.6 (95% C.I.). The form covered demographics and questions on ASD, ensuring participant confidentiality for ethical reasons.

Results: The results revealed that, 79% acknowledge poor ergonomics impact on spinal deformity. 92% recognize educating patients on proper posture for ASD is crucial. 47% support radiological investigations for back pain. 72% believe in the effectiveness of bracing, despite no literature proof. Regarding surgical correction, 28% deny reoccurrence, 35% are unsure, and 42% believe physiotherapy alone can manage spinal deformity, while 27% disagree.

Conclusion: Enhancing patient well-being in terms of preventing deformity or disability related to ASD requires measures focused on prevention and outcomes. The prevention of complications arising from spinal deformities is attainable by timely modification of causative factors. Achieving this goal relies on the proper alignment of physiotherapists' perceptions in the right direction.

Abbreviations:

BPT: Bachelor of Physiotherapy

ASD: Adult spinal deformity

PT: Physiotherapy

KEYWORDS: Spinal mal-alignment, Adult Spinal Deformity, perceptions, physiotherapy students.

INTRODUCTION:

Adult Spinal deformity (ASD) is very common condition, if treated timely or prevented intime then the quality of life of the patient will be improved significantly.¹ The students of physiotherapy, currently perusing graduation course (Bachelors of Physiotherapy (BPT) in India) in the subject already studied the topic of ASD and learning its practical implications. We conducted the study

among final year BPT students of Gujarat through an online survey about their perceptions towards ASD.

The recognized role of physiotherapists in preventing and treating ASD is acknowledged, with nonoperative treatment considered the primary approach to conservative care. In cases of minimal instability and neurological issues, non-operative care is recommended as the initial course of action for all patients.^[1]

Studies conducted in the U.K., USA, Nigeria, and various other countries have demonstrated a lack of adequate knowledge and awareness among students regarding spinal deformities. No specific studies on Adult Spinal Deformity have been conducted in India from ^[2-4]. The increasing burden of the disease underscores the need for a shift in education and attitudes towards addressing it.

Further evidence supports the deficiency in clinical reasoning knowledge among final-year physiotherapy students in Portugal. The study reveals that the primary aim of clinical reasoning is to aid musculoskeletal physiotherapists in diagnosing and treating clinical issues while enhancing the effective management of individual practices.^[5] We selected the final-year student population, as they form the foundation for the upcoming generation of researchers and serve as the cornerstone for the incoming cohort of physiotherapists.

METHODOLOGY:

It is a cross sectional survey study conducted through online mode among Final year BPT students of Gujarat. Online questionnaires circulated through emails and social media platforms like WhatsApp etc.

We circulated the google form to 54 physiotherapy institutes of Gujarat, of which total population calculated of final year students were 2418. Out of which 345 responded. Estimated required sample size through W.G. Cochran method at 95% C.I. was 332.^[6] Google form consisted on demographic details of participant and questions regarding ASD. The name of participant, email address and name of universities are kept confidential for ethical purpose.

Among received 345 responses, 17 participants excluded because of not matching the inclusion criteria. Out of selected 328 participants, 83% respondents were female and 17% were male. To the best of author's information no such kind of studies regarding perception of final year physiotherapy students regarding ASD has been conducted in Gujarat, India.

Ethical consideration: The study was approved by institutional ethical committee of Charotar University of Science and Technology on 1st February 2021.

RESULTS:

The study was conducted on the final year BPT students of Gujarat and we received participation from all the physiotherapy institutes of Gujarat. Among 328 respondents 45%(n= 148) had exposure of treating patients with adult spinal deformity(Table no.1). Majority of students, 80%(n=263) could correctly identified definition of ASD. The final year BPT students will be practicing after 6 months, they require clear concepts and evidence-based information about management of ASD.

Table 1- Exposure of students to ASD patients for treatment

	MALE	FEMALE	Total
YES	28	120	148
NO	28	152	180
Total	56 (17%)	272 (83%)	328 (100%)

About ASD, we asked few questions like common age of occurrence and percentage of older population affected by ASD. 34% of final year BPT students could state common age of occurrence of ASD and around 48% students knows the percentage of older population affected by ASD.

The correct and incorrect responses we received about few basic questions regarding ASD are shown in Table no.2.

Table 2- ASD related basic questions

No.	Subject	Correct answer	I don't know	Incorrect answer
Q1	Definition of ASD	263	33	32
Q2	Common age of occurrence	113	16	199
Q3	% Of older population affected with ASD	158	98	72

Among 328 students 99% students believed that postural deformity affects the gait of the patient. 78% students believed that spinal deformity can be managed only conservatively. Majority of students which is 89% knows that ASD worsens progressively with age. 79% students agreed that habitual asymmetric posture can result in to asymmetric curvature of spine as a part of natural response. Only 42% students believed that ASD affects mental health. 15% students denied strongly about ASD affecting mental health. And 43% students were not sure about the effect of ASD on mental health. 55% students agreed that we should assess the spine even when patient comes with other complaints. The perception of students regarding ASD has been shown in Table no.3.

Table 3- Perception regarding ASD

NO.	Question	YES	Not sure	NO
1	Postural deformity affects Gait of the patient	325	2	1
2	Spinal deformity can be managed only conservative way	256	19	53
3	ASD worsens progressively with age	291	22	15
4	Habitual asymmetric posture can result into reversible asymmetric curvature	258	49	21
5	ASD affects mental health of patients	137	142	49
6	PT should assess the spine even when patient comes with other complains	182	94	52
7	Impact of poor ergonomics on development of spinal deformity	260	49	19
8	Patient education about proper posture helps in preventing and treating spinal deformity	302	17	9
9	Perceived requirement of radiological investigation for patient with back pain	154	103	71
10	Patient with cervical spondylosis will also have associated thoraco-lumbar spinal deformity	142	104	82
11	Bracing is highly effective in management of ASD	235	74	19
12	Chances of reoccurrence of spinal deformity in surgically corrected spine	122	114	92
13	Alone PT can manage spinal deformity	136	102	90

Impact of poor ergonomics on development of spinal deformity in adults is known well among students (79%). And majority students (92%) know the importance of patient education about proper posture in preventing and treating ASD. 47% of students positively in favor of perceived requirement of radiological investigations for patients having back pain.

72% students believe that bracing is highly effective in managing ASD. 6% students denied while 22% students were not sure regarding effectiveness of bracing. The effectiveness of bracing is not yet proven in any literature, still the use of bracing for treating ASD is very prevalent globally.^[7]

28% students denied possibility of reoccurrence of spinal deformity after surgical correction of spine. 35% students were not sure about possibility of reoccurrence of spinal deformity in a surgically corrected spine. 42% students strongly believed that the spinal deformity can be managed by physiotherapy alone while 27% students denied the statement.

DISCUSSION:

Early diagnosis and intervention, along with preventive measures, can avert adult spinal deformity. Adequate knowledge of ASD, including risk factors and diagnostic methods, is crucial for timely identification and effective prevention or treatment. This study aimed to outline the collective perceptions of final-year physiotherapy students in Gujarat regarding ASD. Existing literature on ASD, primarily focused on classification and surgical management, has been conducted by numerous researchers in the field. Limited literature exists on the prevention of ASD and the conservative management approach. Considering that final-year BPT students will be future practitioners in the community, they have the opportunity to not only treat ASD but also contribute to community well-being by preventing ASD among individuals.

In our study more than half of BPT students (55%) have not treated the patients of ASD. During their learning phase, there is a need of increasing exposure of treating ASD patients. More than half of the students were not in favor of getting radiological investigations for patients having back

pain. From the results of the study, we perceived that if the practical exposure of the students will increase, they will be able to manage the ASD patients in a better way.

A study comparing mental health assessments in the United States between individuals with ASD and the healthy population demonstrated compromised social functioning and emotional roles in those with ASD [8], signifying a disrupted mental status. In our study, 42% of students recognize the influence of ASD on mental health.

When a patient presents with cervical spondylosis, the physiotherapist should also assess the spine's alignment to eliminate associated thoracolumbar spinal deformities. [9] 43% of students express the belief in the potential co-occurrence of these two conditions. Deformity may also arise from previous surgery, where the stabilization of the spine could be compromised due to the removal of structural elements such as the intervertebral disc and facet joint. Or prior surgery in which spine is fused in disrupted alignment, and that becomes a valid reason for revision of the surgery [10] 35% students in our study were not sure regarding possibility of re occurrence of spinal deformity after surgical correction of spine.

A crucial finding in the study is that students strongly believe in the significant impact of ergonomics and postural reeducation on the outcomes of spinal deformity. Around 92% students believe that educating patients regarding their posture can help in prevention of ASD. Thus, educating the people about proper posture and ergonomic education will enhance the community wellness in term of preventing deformity of spine.

The present study had limitations, including the absence of previous data for comparison, as no similar studies have been conducted in Gujarat, India. The data was gathered through online means due to the ongoing Covid-19 pandemic. The questionnaire was exclusively administered to final-year BPT students, recognizing that master's level physiotherapy students and clinicians could have produced different results for the questionnaire. As a future recommendation, similar surveys can be conducted on clinicians and experts. Additionally, further research can delve into various factors influencing the perceptions of physiotherapists.

CONCLUSION:

Preventing ASD and averting complications arising from spinal deformities could be accomplished by timely modification of causative factors. To achieve this, having accurate perceptions about ASD is crucial. Sufficient knowledge, coupled with the cultivation of a positive attitude towards ASD prevention and outcome-related measures, will contribute to the improvement of patient well-being by preventing deformity or disability in accordance with their disease status. Preventing the spinal deformity occurrence will always better than treating conservatively or surgically correcting the spine.

Based on the results we got, further studies and more practical exposure about this particular topic is required to develop holistic approach as a physiotherapist. Emphasizing both problem-based and evidence-based learning in ASD is crucial to instigate positive change and a preventive approach in the field of physiotherapy, particularly among BPT students, concerning adult spinal deformity.

Declaration -

- Ethics approval and consent to participate – Patients consent was taken completely.
- Consent for publication – All authors give permission for the publication
- Availability of data and materials – Data was made available by the corresponding author.
- Competing interests – No competing interest was recorded.
- Funding – There is no funding for the research.

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