Satisfaction of Scoliosis patients Using SRS -22 Questionaire Our Experience in Gourki Trust Teaching Hospitals Lahore.

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ABSTRACT

Objective: This study aimed to evaluate the clinical outcomes of scoliosis patients using the SRS-22 questionnaire in a cohort treated with segmental spine instrumentation.

Methodology: A retrospective cohort study was conducted at Gourki Trust Teaching Hospitals in Lahore, Pakistan. Medical records of scoliotic patients who underwent segmental spine instrumentation were reviewed, and SRS-22 questionnaires were administered. Preoperative and postoperative data were collected, including Cobb's angles and SRS-22 scores. Statistical analysis was performed using SPSS version 23.9.

Results: Forty-one patients were included in the study, predominantly females (68.3%) with idiopathic scoliosis (78%). Significant reductions in Cobb's angles were observed postoperatively ($p < .001$). SRS-22 scores indicated high satisfaction levels across various domains, with moderate to high overall satisfaction in HRQoL aspects.

Conclusion: Segmental spine instrumentation demonstrated positive outcomes and significantly improved HRQoL in scoliosis patients. The Urdu-translated SRS-22 questionnaire proved to be a reliable tool for assessing outcomes.

Keywords: Scoliosis, SRS-22 questionnaire, segmental spine instrumentation, health-related quality of life, clinical outcomes

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INTRODUCTION

When assessing the deformity of the spine and the efficacy of treatment for scoliotic patients, the health-related quality of life (HRQoL) has a significant impact but has been disregarded[1]. With a frequency of 1%–3%, adolescent idiopathic scoliosis (AIS) is one of the most prevalent spine abnormalities.[2] For individuals whose curves are more than 45°, posterior spinal fusion (PSF) surgery may be necessary[3]. As patients' knowledge of severe adolescent idiopathic scoliosis (AIS) grows, so does their worry for their health-related quality of life (HRQOL) both before and after surgery. A well-known disease-specific HRQOL PRO tool is the Scoliosis Research Society-22 questionnaire (SRS-22), and its use to surgical patients has also received positive press.[4]

Observation, bracing, and surgical therapy comprise management; curves less than 25° are noted. Those who are over 40° require surgery, whereas those who are between 25° and 40° are braced[5]. A number of variables affect the prognosis, including as the curve's form, curvature magnitude, age of start, bone development stage, and progression pace, which varies from curve progression to stability or disappearance with growing[6]. Uneven shoulders and an asymmetrical waist can emerge from the progression of curves, which can then cause discomfort, degenerative changes in the spine, a number of difficulties in daily

living activities, and in extreme situations, disrupted pulmonary function[7].

In addition to enhancing pulmonary function, reducing discomfort, and halting curve advancement, segmental spine instrumentation may be necessary to enhance cosmesis and self-image[8].

Mental dysfunction and psychological issues affect the patient and their family as a result of scoliosis[9].

METHODOLOGY

This retrospective cohort study was conducted within the Orthopaedic and Spine Department of Gourki Trust Teaching Hospitals in Lahore, Pakistan, following approval from the hospital's ethical committee. Medical records of scoliotic patients who underwent segmental spine instrumentation at Gourki Trust Teaching Hospitals Lahore were accessed for the study. The SRS-22 questionnaire was translated into Urdu for administration. The translated questionnaire was disseminated to patients via WhatsApp, and responses were collected through the same platform. Additionally, nearby patients were invited to the hospital to complete the questionnaire in person. The study included patients with idiopathic scoliosis, congenital scoliosis, and syndromic scoliosis who had a follow-up duration of more than one year. Patients with implant infections or neurological deficits post-segmental spine instrumentation were excluded from the study. Preoperative and postoperative Cobb's angles were measured using anteroposterior standing radiographs. Scores for function, pain, self-image, mental health, satisfaction, dissatisfaction, and total score were calculated from the respective SRS-22 questionnaire responses for each patient. Data were recorded using Microsoft Excel, and statistical analysis was performed using SPSS version 23.9.

RESULTS

Data from 41 scoliosis patients undergoing posterior spinal fusion (PSF) are presented in Table 1. The majority of participants were women (68.3%), with a mean age of 15.07 years. The predominant type was idiopathic scoliosis (78%), and the mean pre-operative Cobb's angle was 74.78°, significantly reduced to 33.78° post-operatively ($p < .001$). SRS-30 questionnaire scores indicated positive outcomes, with high satisfaction in pain, function, self-image, mental health, satisfaction with management, and total score. The mean score for pain was 3.67, indicating a moderate to high level of satisfaction among patients regarding pain management post-surgery. The mean function score was 3.51, reflecting moderate satisfaction with functional outcomes. The mean self-image score was 3.81, indicating a generally positive perception of self-image post-surgery. The mean mental health score was 3.53, reflecting moderate satisfaction with mental well-being. The mean satisfaction with management score was 4.35, indicating high overall satisfaction with treatment and care. The mean total score was 3.66, representing overall moderate to high satisfaction across all measured aspects of health-related quality of life (HRQOL).

Table 1: Demographic and Clinical Parameters of Scoliosis Patients (n=41)

Variables	N	%	Mean ± SD	Range	p-value
Gender					
Male	13	31.7			
Female	28	68.3			
Age (years)			15.07 ± 2.98	(11-26)	
Type of scoliosis					
Congenital	7	17.1			
Idiopathic	32	78.0			
Neuromuscular	2	4.9			
Pre-op Cobb's angle (°)			74.78 ± 10.14	(55-90)	<.001
Post-op Cobb's angle (°)			33.78 ± 15.27	(10-65)	
SRS-30 Satisfaction Score					
Pain			3.67 ± 0.71	(1.8-4.8)	
Function			3.51 ± 0.66	(1.4-4.6)	
Self-image			3.81 ± 0.76	(1-5)	
Mental Health			3.53 ± 0.83	(1.4-4.8)	
Satisfaction with management			4.35 ± 0.68	(2-5)	
Total Score			3.66 ± 0.54	(1.5-4.45)	

Table 2: Comparison of Average Satisfaction Score According to Characteristics of Patients

Characteristics	Pain	Function	Self-image	Mental Health	Satisfaction with Management	Total Score
Gender						
Male	4.08 ± 0.50*	3.42 ± 0.45	3.96 ± 0.65	3.72 ± 0.69	4.46 ± 0.38	3.82 ± 0.37
Female	3.48 ± 0.72*	3.56 ± 0.75	3.75 ± 0.81	3.44 ± 0.85	4.30 ± 0.79	3.59 ± 0.62
Age (years)						
11-17	3.73 ± 0.70	3.55 ± 0.57	3.87 ± 0.58	3.62 ± 0.80	4.39 ± 0.59	3.72 ± 0.44
18-26	3.24 ± 0.75	3.24 ± 1.19	3.44 ± 1.64	2.92 ± 0.84	4.10 ± 1.24	3.26 ± 1.02
Type of scoliosis						
Congenital	3.71 ± 0.49	3.77 ± 0.44	3.79 ± 0.80	3.43 ± 1.18	4.50 ± 0.41	3.72 ± 0.53
Idiopathic	3.66 ± 0.77	3.45 ± 0.71	3.85 ± 0.76	3.58 ± 0.77	4.30 ± 0.74	3.66 ± 0.56
Neuromuscular	3.60 ± 0.57	3.60 ± 0.28	3.10 ± 0.71	3.10 ± 0.71	4.35 ± 0.68	3.52 ± 0.35

**Statistically significant at a 5% level of significance.*

Table 3: Correlation Between Satisfaction Score & Cobb's Angle

Variables	Function	Pain	Self-image	Mental Health	Satisfaction with Management	Total Score	Pre-op	Post-op
Function	1	.212	.507**	.534**	.507**	.753**	-.256	-.211
Pain	.212	1	.274	.239	.196	.549**	.178	.148
Self-image	.507**	.274	1	.672**	.602**	.834**	-.139	-.418**
Mental Health	.534**	.239	.672**	1	.198	.820**	.008	-.260
Satisfaction with Management	.507**	.196	.602**	.198	1	.569**	-.185	-.247
Total Score	.753**	.549**	.834**	.820**	.569**	1	-.080	-.257
Pre-op	-.256	.178	-.139	.008	-.185	-.080	1	.612**
Post-op	-.211	.148	-.418**	-.260	-.247	-.257	.612**	1

Notes: ***Correlation is significant at the 0.01 level (2-tailed).*

Table 2 shows average satisfaction scores according to patient characteristics. Males had significantly higher satisfaction scores than females. Higher satisfaction was reported by patients aged 11-17 compared to those aged 18-26. No significant difference in satisfaction was found according to the type of scoliosis ($p > .05$).

Table 3 presents a comprehensive overview of the correlations between satisfaction scores and Cobb's angle across various parameters. Analyzing the data reveals several noteworthy relationships. Function exhibits a slight positive correlation with satisfaction scores ($r = 0.212$), indicating a limited but discernible association between functional ability and satisfaction. Pain displays a moderately positive correlation ($r = 0.549^{**}$), implying that higher levels of pain are generally associated with lower satisfaction scores. Self-image and mental health both demonstrate robust positive correlations with satisfaction scores ($r = 0.834^{**}$ and $r = 0.820^{**}$ respectively), indicating that positive perceptions in these domains coincide with higher overall satisfaction. Similarly, satisfaction with management shows a moderate positive correlation ($r = 0.569^{**}$), suggesting that effective management strategies contribute to enhanced patient satisfaction. Both pre-operative and post-operative Cobb's angles exhibit negative correlations with satisfaction scores, implying that higher curvature angles are associated with lower satisfaction, both before and after surgery.

DISCUSSION

Patients with scoliosis have a variety of repercussions in their lives, including mental, physical, and social contributions. Severe deformities can even be fatal. A person's looks, particularly in women, can have an impact on their mental health, self-esteem, and self-image, which makes them avoid social situations. Numerous research have demonstrated the detrimental consequences of AIS on psychological states and quality of life[10].

Numerous research attempted to ascertain the effects of therapy on these parameters because to the significant consequences that scoliosis has on quality of life and enjoyment. The SRS questionnaire proved to be a helpful instrument in achieving this aim, and it had been verified in several earlier investigations.[11-15]

In this study total 41 patients were included who underwent instrumental spine instrumentation and their satisfaction level was studied using SRS-22r questionnaire, women were in majority 68.3 %, majority of patients were of idiopathic scoliosis 78 %. Post surgery Cobb's angle was reduced from average 74.7°to 33.7° .Relative high satisfaction regarding SRS-22 score of pain, function, self-image, mental health, satisfaction with management and total score, the score of all these parameters were respectively were 3.67,3.51,3.81,3.53,4.35,3.66. All these shows moderate to high level of satisfaction across all measured aspects of health-related quality of life. All these values are in line with study of Abdulmajeed Alzakar[16], Results of surgical therapy for teenage idiopathic scoliosis in Saudi patients. However, they compare the SRS-22 questions before and after surgery in their research. .In our study male have high satisfaction scores compared to female and high in age groups 11-17 then 18-26 .the reason might be that self-image have strong correlation to satisfaction and functional score ,and females have more concerned about self-image .In our study self image scores have positive correlation to all domains (function r =0.507), (pain r =0.274),(mental health r=0.602), satisfaction with management (r=0.196), and high correlation with total score (r=0.8). This is showed by many studies[16,17,18,19,20]. The self-image domain exhibited the strongest association coefficient, followed by the mental health and pain domains, respectively. This suggests that all of the domains contributed to the overall satisfaction of the patient with therapy. The strongest correlation (0.378) was seen in the overall score, followed by self-image (0.332) and the other categories, particularly the mental health (0.202) and pain (0.176) domains.. In our study postoperative Cobb's angles have significantly negative correlation with total satisfaction scores (r=-0.257 p <.01) means more in reduction of postoperative Cobb's angles greater in satisfaction scores . Cobb angle was shown to be significantly correlated with postoperative function, total, pain, and self-image dimensions (r = -0.23, P < 0.001) in a multi-center research that included 265 adolescents who had surgical treatment for AIS[21]. In terms of the survey's overall score and specific domain scores, Herdea et al. showed statistically significant connections between the correction rate and SRS scores (P < 0.001). Based on these results, it can be concluded that higher correction rates result in higher SRS score values[22]. In our study, The total score demonstrates very strong positive correlations with all individual domains: function (r = 0.753), pain (r = 0.549), self-image (r = 0.834), and mental health (r = 0.820). satisfaction with management correlates moderately positively (r = 0.569).Same showed in study of Abdulmajeed Alzakar[16], All of the domains had a strong correlation with satisfaction, regardless of their order, suggesting that they all contributed to the patient's total treatment satisfaction score.

Our study is subject to several limitations commonly encountered in research endeavours. Firstly, the absence of preoperative satisfaction data restricts our ability to make direct comparisons with postoperative outcomes, potentially limiting the depth of our analysis. Secondly, the relatively brief follow-up duration, averaging approximately one and a half years, may not capture the long-term effects of surgical interventions comprehensively. Additionally, the inclusion of patients with congenital and neuromuscular scoliosis alongside those with idiopathic scoliosis introduces heterogeneity into our sample, potentially confounding our results. Finally, the small sample size of our study cohort may restrict the generalizability of our findings and limit the statistical power of our analyses.

CONCLUSION

In our study it is concluded that a good outcome was obtained from segmental spine instrumentation of scoliotic patients ,and have positive effect on health related quality of life and our translated Urdu version was a good tool to assess outcomes of scoliosis patients .

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Authors Contributions:

1. Manuscript Writing, Data Collection, Data Analysis, Drafting.
2. Conceptualization, Data Collection, Drafting, Data Analysis,
3. Data Collection, Drafting,
4. Data Collection, Drafting
5. Data Collection, Drafting
6. Data collection, Drafting.
7. Data Collection, Proof Reading.

Ethical Approval:

This study is approved from Gaurki Trust Teaching Hospital Lahore, Pakistan, ethical review board. The Institutional Review Board (IRB No:)

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