

# COMPARATIVE EVALUATION OF PARENTAL PERCEPTIONS OF THE ORAL HEALTH-RELATED QUALITY OF LIFE OF AUTISTIC AND NON-AUTISTIC CHILDREN AFTER FULL MOUTH REHABILITATION UNDER GENERAL ANESTHESIA

Noor AL Aswad<sup>1</sup>, AlWaleed Abushanan<sup>2</sup>, Saqib Ali<sup>3</sup>

<sup>1</sup>College of Dentistry, Riyadh Elm University, Riyadh - Saudi Arabia

<sup>2</sup>College of Dentistry, Prince Sattam Bin Abdulaziz University, Al-Kharj - Saudi Arabia

<sup>3</sup>Department of Biomedical Dental Sciences, College of Dentistry, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia

## ABSTRACT

**Objectives:** To compare the parental perceptions of the oral health-related quality of life (OHRQOL) of autistic and non-autistic children after full mouth rehabilitation under general anesthesia (GA).

**Methods and Materials:** The study included 114 autistic children and 116 children without autism. Two years after receiving therapy under GA, participating parents completed a condensed version of the Perceptions Questionnaire (P-CPQ) and Family Impact Scale (FIS). Demographic data was collected. Oral symptoms, social health, psychology, functional limitation, and family affect ratings. Mean, standard deviation and statistical differences between groups were analyzed using SPSS.

**Results:** Children with autism received higher overall P-CPQ scores than children without autism, according to the frequency distribution of the P-CPQ for parental perception when children with and without autism were compared. In all four domains, when scores were compared according to the domain, there was no statistically significant difference in the scores. According to the FIS frequency distribution, children with autism had higher total FIS scores than children without the condition. The change was not statistically significant, though. Only parental emotions showed a statistically significant difference when scores were examined by domain.

**Conclusion:** Children with autism and children without autism score the same on the P-CPQ, indicating that the impact of comprehensive rehabilitation under GA is positive for both types of children. Parent emotions may not change immediately following the complete rehabilitation under GA which may be required to handle separately to boost the confidence of the patient.

**Keywords:** Autistic, children, general anesthesia, parents, perception

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## INTRODUCTION

Autism is "a complex developmental disability that typically appears during the first three years of life and affects a person's ability to communicate and interact with others".<sup>1,2</sup> There is a better understanding of this disability as of now with broader inclusion of the disease process

with few related disabilities that have been recognized as a separate entity as Autism Spectrum Disorders (ASDs).<sup>3</sup> Children with autism require special care, and pediatric dental treatment demands several modifications. The involvement of the parents in the management of systemic and dental conditions of the autistic child helps to achieve better development of the child.<sup>4</sup>

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Correspondence

**Dr. Saqib Ali**

Department of Biomedical Dental Sciences College of Dentistry, Imam Abdulrahman Bin Faisal University, Dammam-Saudi Arabia.

**Cell:** +966(0)546992734

**Email:** samali@iau.edu.sa

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Knowing the prevalence aids in the establishment of appropriate policies and programs for the care of this particular group. The numerous studies that have been published to date make it abundantly evident that the frequency of ASD varied greatly by nation, gender, socio-economic position, geographic location, continent, and the assessment methods employed. Adak and Halder in their systemic review concluded the average prevalence

of 9.19 per 1,000 population in Saudi Arabia.<sup>5</sup> Another recent study in Saudi Arabia revealed that 2.81 out of every 1,000 children in Jeddah and 3.68 out of every 1,000 in Makkah had ASDs.<sup>6</sup>

Dental treatment under general anesthesia (GA) is one of the methods to treat children with dental disease. The use of GA in autistic children seems to be much more required than that of normal children since many patients require complete full mouth rehabilitation and it needs to be completed in fewer appointments, managing these individuals in a clinical setting is different from that of normal individuals as it poses significant issues in behavior and communication while providing dental care and treatment.<sup>7</sup> Although such treatment is commonly done and followed in autistic children, involved parents' perception is important to continue, and if required any modification in the treatment strategies.<sup>8</sup>

Assessing Oral Health defined Oral Health-Related Quality of Life (OHRQoL) helps in identifying the exact need of the patients and the expectation of the parents. According to a Saudi Arabian study, autistic children and their families had lower OHRQoL than typically developing children.<sup>9</sup> However, to date, there are no studies done on the parental perceptions of OHRQoL with autistic individuals treated with complete rehabilitation under GA. Thus, the current study is aimed to compare parental perceptions of the OHRQoL in both autistic and non-autistic groups 4-9 years after treatment under GA.

## MATERIALS AND METHODS

A cross-sectional study was conducted in March-December 2022 to compare the parental perceptions of the OHRQoL of autistic and non-autistic children after full mouth rehabilitation under GA at Dammam Dental Center, Dammam, Saudi Arabia. The sample size for the present study was calculated using G power 3.0.10 version software. The effect size of 0.32 was calculated based on a similar study by Pani et al. (2013).<sup>9</sup> The alpha error was fixed at 5% and the power of the study was fixed at 80%. The estimated sample size was 116. Ethical approval (FPGRP/2021/653/677/660) was obtained from Riyadh Elm University, Riyadh, Saudi Arabia, and Dammam Dental Center, Dammam, Saudi Arabia.

Children aged 4-9 years who had undergone comprehensive dental treatment under GA at Dammam Dental Center, Dammam, Saudi Arabia were included in the study. Inclusion criteria: patient age group between 4 to 9 years treated under GA, n established diagnosis of ASD by a medical specialist, and received full dental rehabilitation under GA. Exclusion criteria: children diagnosed with other co-morbidities and whose ages are not within the mentioned above. After obtaining informed consent from the parents for participating in the study, data was collected. All the patients were given a questionnaire to answer

following 2 years after completion of the treatment.

The questionnaire used for the study was divided into three sections: demographic information (age, gender, and nationality of the child), the child's oral health practices (brushing, flossing, and sugar consumption), and parents' attitudes toward their child's oral health. The questionnaires used for data collection were based on the OHRQoL questionnaire. The P-CPQ consists of 31 items that are divided into four subscales: Oral Symptoms, Functional Limitation, Emotional Well-being, and Social Well-being, and aimed to assess the frequency of events within the past 3 months. The FIS consists of 14 items that aim to assess the effect of a child's oral condition in four domains: Family Activities, Parental Emotions, Family Conflict, and Family Finances.

A five-point Likert-like scale was used to score the items. Data collected were generated using Microsoft Excel (Excel 2015, Microsoft Corporation, Redmond, WA.) spreadsheet. Descriptive analysis was computed. The Mann-Whitney test was employed to compare the scores between the two groups. The statistical analysis was performed using SPSS (IBM Corp. Released 2013. IBM SPSS Statistics for Macintosh, Version 22.0. Armonk, NY: IBM Corp.) and tests were conducted at a confidence interval (CI) of 95%, and a significance level of 0.05.

## RESULTS

A total of 114 autistic children and 116 non-autistic children participated in the study. Table 1 shows the demographic characteristics of the children. The autistic children (61 boys and 53 girls) were aged 2-6 years (mean age, 5.0 years; SD,  $\pm 1.1$ ). Children without autism (78 boys and 38 girls) were aged 1-6 years (mean age, 3.8 years; SD,  $\pm 1.9$ ). The mean difference in age was statistically significant ( $p < .001$ ). Autistic children were more likely to be girls ( $p < .05$ ) and from Dammam ( $p < .001$ ).

## PARENTAL PERCEPTION

Figure 1 shows the frequency distribution of P-CPQ. When the parental perception scores were compared between children with and without autism (Table 2), it was found that the overall P-CPQ scores for autistic children were higher than those for children without autism. However, the difference was statistically not significant ( $p > .05$ ).

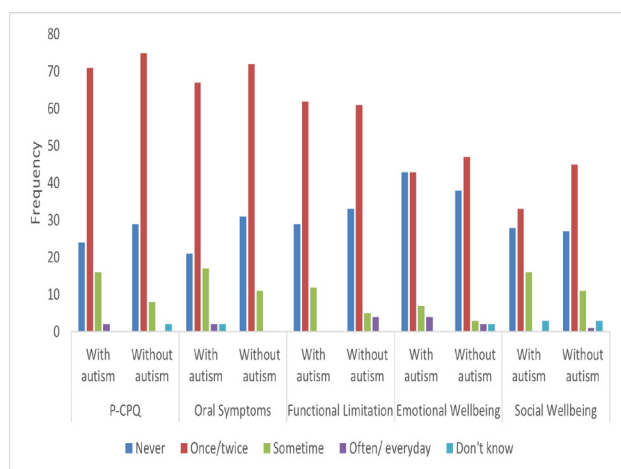
When scores were compared according to the domain, it was observed that autistic children had lower scores in functional limitation and emotional well-being than children without autism. On the other hand, scores in oral symptoms and social well-being were higher in autistic children than in children without autism. However, in all four domains, the difference in the scores was statistically not significant ( $p > .05$ ).

**FAMILY IMPACT**

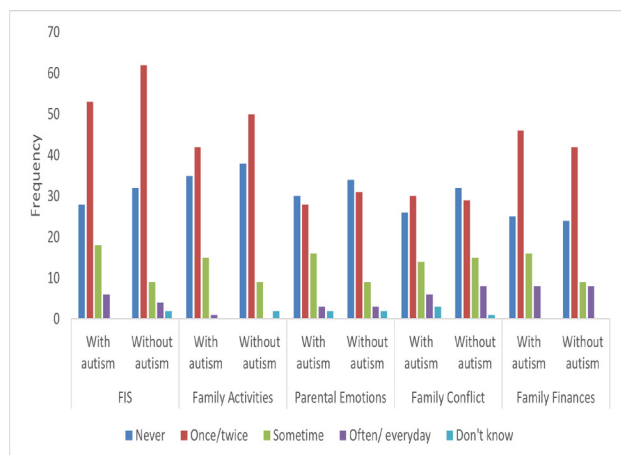
Figure 2 shows the frequency distribution of FIS. When the family impact scores were compared between autistic children and children without autism (Table 3), it was found that the overall FIS scores for autistic children were higher than those for children without autism. However, the difference was statistically not significant ( $p > .05$ ). When scores were compared according to the domain, it was observed that autistic children had higher scores in family activities, parental emotions, family conflict, and family finances than children without autism. However, a statistically significant difference in the scores was found only with parental emotions ( $p < .05$ ).

**DISCUSSION**

OHRQOL assessment is much in need among children with autism. Perceptions of parents and caregivers of autistic children will add a new dimension to the treatment. Autistic children treated for complete rehabilitation under GA and their parent’s perception regarding the oral health and general well-being assessed will be beneficial to build up the overall treatment strategy. Thus, the present cross-sectional study was planned to compare



**Fig 1: Frequency distribution of P-CPQ**



**Fig 2: Frequency distribution of FIS**

**Table 1: Demographics details of the study population**

		With autism	Without autism
Gender	Boy	61	78
	Girl	53	38
Location	Dammam	113	72
	Khobar	1	3
	Qatif	0	5
	Riyadh	0	36
Father's education	Elementary or less	2	2
	Middle or high school	1	2
	College	98	94
	Higher education	13	18
Mother's education	Elementary or less	4	45
	Middle or high school	3	3
	College	94	58
	Higher education	13	14
Father working	Yes	110	81
	No	4	34
Mother working	Yes	41	39
	No	73	72
Family income	SAR 3,000 or less	7	12
	SAR 3,000 – 5,000	14	19
	SAR 5,000 – 10,000	52	39
	SAR 10,000 – 20,000	20	28
	SAR 20,000 or more	4	3

**Table 2: P-CPQ scores for children with autism compared to those without autism**

	With autism	Without autism	p-value
P-CPQ		16.17 (±8.65)	.919
Oral Symptoms	5.80 (±2.30)	5.24 (±2.35)	.142
Functional Limitation	4.84 (±2.27)	4.96 (±2.11)	.630
Emotional Well-being	4.00 (±3.26)	4.30 (±2.95)	.227
Social Wellbeing	4.25 (±2.90)	3.90 (±2.24)	.781

**Table 3: Family impact scores for children with autism compared to those without autism**

	With autism	Without autism	p-value
FIS	14.14 (±8.92)	12.29 (±6.83)	.324
Family Activities	5.73 (±3.79)	5.51 (±3.12)	.974
Parental Emotions	4.29 (±3.14)	3.37 (±2.59)	.048*
Family Conflict	2.94 (±1.76)	2.86 (±1.70)	.801
Family Finances	4.01 (±2.50)	3.58 (±2.23)	.260

and evaluate the parental perceptions of the OHRQOL in autistic and non-autistic children after full mouth rehabilitation under GA.

The difference in the prevalence rate of the present study compared to previous studies could be due to the variation in the sample size.<sup>10</sup> However, it is also important to know that this is not a prevalence study. Parental perceptions regarding the management of autistic children are an important part of the management of ASD. P-CPQ scores for autistic children in the present study were higher than those for children without autism.

Nonetheless, it should be noted that the difference in scores in all four domains was statistically not significant. According to Pani et al., pediatric autism lowers OHRQOL for both the affected kid and the family.<sup>9</sup> Alaki et al. reported that autistic children scored much worse on measures of their oral health.<sup>8</sup>

Both study findings are not in agreement with the present study. However, these two studies are not related to the recording of the perception of patients following treatment.

According to previous studies, it is clear that complete rehabilitation or the treatment of autistic children under GA improves overall health conditions including the oral condition of the autistic children, and improvement in positive perceptions of parents.<sup>11-14</sup>

When children with autism and children without autism were compared using the FIS, it was discovered that the total FIS scores for autistic children were higher than those for children without autism. However, only parental emotions were found to have a statistically significant effect on the ratings.

Similar findings were reported in a study by Mokhtar et al.<sup>14</sup> However, other studies reported different outcomes. According to Baens-Ferrer et al., oral rehabilitation under GA improves QOL for children with exceptional healthcare needs and their families.<sup>15</sup> Baghdadi also reported that treatment under GA is associated with considerable improvement in FIS scores among the parents of the children.<sup>12</sup>

The present study compared the OHRQoL of autistic children with that of healthy children of similar age groups. Thus, the study results provide new information on the treatment and management of autistic children. Yet there were several limitations to this study.

Due to the lack of accuracy in the medical records, the severity and classification of the health condition of the autistic group were not used which could have provided further insight into their OHRQoL.

Also, the parents or caregivers that completed the questionnaire might have completed it based on what

they believed the investigators want to know rather than what they believed which limits generalizability. It would be beneficial in future studies to assess the OHRQoL of autistic children before their treatment under general anesthesia and follow up after to have a better understanding, as it would enhance the current literature and provide further insight into the management of autistic children.

## CONCLUSION

There is no difference in the parent perception between autistic and non-autistic children, thus suggesting that the impact of complete rehabilitation under GA is beneficial to autistic children like non-autistic children.

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**AUTHOR'S CONTRIBUTION**

Following authors have made substantial contributions to the manuscript as under

**Aswad NA:** Data collection, Analysis, Interpretation of data and Write up

**Abushanan A:** Concept, Design, Supervision, Proofreading

**Ali S:** Acquisition, Critical Review and Write up

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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