



Comprehensive Assessment of Patient's Awareness and Knowledge about Removable Partial Denture Treatment: A Questionnaire Based Original Research Study

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ABSTRACT:

Background and Aim: Removable partial denture is an integral portion of Prosthodontic rehabilitative procedures. It frequently restores esthetics, functions and phonetics to a certain extent. Here authors have attempted to evaluate the relative awareness and knowledge levels about RPD in studied patients.

Materials & Methods: This study was conducted in the department of Prosthodontics of the institute wherein all patients were screened and selected for the study. We analyzed 100 patients of both the genders. For analyzing the awareness levels, we had used a pre-framed questionnaire containing 8 questions related to knowledge and awareness. We had processed the data of patients those recorded as responses of the questionnaire. Responses were recorded in tables and data was processed statistically to estimate real awareness and satisfaction levels.

Results: Statistical analysis was done using statistical software Statistical Package for the Social Sciences. The resultant data was employed to suitable statistical tests to obtain p values, mean, standard deviation, standard error and 95% CI. $P \leq 0.05$ was considered as statistically significant. Total 91 patients think that it is an excellent option for those who can't afford advanced treatment options like Implants, etc. Total 51 patients believe that patients usually experience pain while wearing RPD. Total 62 patients believe that RPDs have deleterious effect of remaining natural standing teeth. The overall measured significant level (p value) was 0.01.

Conclusion: Considering all the limiting factors, authors have finally concluded that level of knowledge and awareness about RPD was moderate in the studied population. However it could differ in other population groups especially in urban setups. Most of the studied patients were not completely aware about RPD therapy. Therefore, awareness exercises and other measures must be conducted periodically so as to raise overall awareness and knowledge levels.

Introduction

Removable Partial Prosthodontics is an adaptable, cost effective, and reversible treatment method for partially edentulous patients at any age. With the shifting styles in dental treatment that favor retention of natural teeth, a turn down in the number of complete dentures with an increase in the number of removable partial dentures (RPDs) is expected.¹ Some of the other workers stated that Removable partial denture therapy (RPD) is an adequate form of treatment for patients with missing teeth. In these circumstances RPDs represent an acceptable and economical modality treatment for patients with partial edentulous. Removable partial denture is an integral part of Prosthodontic

rehabilitative procedures wherein it frequently restores esthetics, functions and phonetics to a certain extent.²⁻⁴ Removable partial denture (RPD) is a very commonly employed therapeutic procedure since decades as it restores the missing teeth and associated dilemmas. As it is one of the economical ways to get rid of the partially edentulous spaces in either arch. Most of the rural populace prefers it as it's as very cost effective option when compared to the other available option for managing partially edentulous spaces like Dental Implants.⁵ De Van's has stated that "Perpetual preservation of what remains is more important than the meticulous replacement of what have been lost." It literally means that the main purpose of partial denture



treatment must always be focused towards conservation of the remaining teeth. Apart from all these factors, RPDs are still being used worldwide as it offers improved phonetics, increasing masticatory efficiency and enhanced aesthetics. RPDs are frequently supported and retained with metal clasps conversely; under severe conditions these clasps are forcing the abutment teeth exactly like an extraction forceps does.⁶ The tradition of acrylic RPDs in the replacement of missing teeth is most common in developing countries. They are commonly referred as interim partial dentures as they are being fabricated for temporary use. However this is not true everywhere and differ from population to populations.⁷⁻¹³ As we all are aware that knowledge and awareness of RPD principally depends on personal preference, attitude towards RPD and previous RPD experience. Along with these factors, few of the local factors also play as important role in this regards such as retention, mastication, and aesthetics. Hence, the authors have attempted this questionnaire based original study to evaluate the real-time knowledge and awareness levels about RPD among studied partially edentulous patients.

Materials & Methods

This study was conducted in the department of Prosthodontics wherein all patients were screened from the department's regular patient footfall. Authors ensured total bias free selection procedure by executing systemic random sampling. Authors have also ascertained to select one patient in every two selection. Inclusion criteria were patients with partially edentulous arches, no para-functional habits, no known disabilities that may have an effect on prosthesis maintenances. The study was being presented and cleared by Ethical clearances of the institute. Patients were divided in to four age groups from 30 to 60 years. All selected patents were explained about the study in detail and written consents were obtained accordingly from each patient. As it was a questionnaire based study, we used a pre framed questionnaire having 8 questions about RPD awareness and knowledge. Total 40 females and 60 male patients participated in the study. Therefore we have obtained the response data of 100 patients in the form of questionnaire. Firstly the patients were selected

then the questionnaires were distributed among them. The privacy and other rights of the respondents and their freedom of expression were entirely ensured. After completion of questionnaire, the patients submitted them to the operator. The data was analyzed and data was tabulated for further evaluation. The results were subjected to statistical analysis using basic statistical test. P value less than 0.05 was considered as significant.

Statistical Analysis and Results

All the recorded data were gathered and sent for statistical evaluation using statistical software Statistical Package for the Social Sciences version 21 (IBM Inc., Armonk, New York, USA). The obtained data was subjected to appropriate statistical tests to calculate p values and other variables. Frequencies of responses were also recorded along with their percentage values. Total 40 females and 60 male patients have participated in the study. **Table 1 and Graph 1** illustrates that age groups 30-40 years had 23 males and 11 females ($P < 0.05$), 41-50 years had 18 males and 12 females, 51-60 years had 11 males and 13 females ($P > 0.05$) and >60 years had 8 males and 4 females ($P > 0.05$). P value less than 0.05 was considered as significant. **Table 2** shows that approximately 22 patients met other existing RPD wearers and discussed with them about RPD. Total 39 patients were aware about the advantages of using RPD. When evaluating the cost factors, the patients were very much satisfied with removable partial dentures. Total 91 patients think that it is an excellent option for those who can't afford advanced treatment options like Implants, etc. Total 51 patients believe that patients usually experience pain while wearing RPD. Total 62 patients think that RPDs have deleterious effect of remaining natural standing teeth. The overall measured significant level (p value) was 0.01. Other studied parameters have also been included and shown in **Table 2**. **Table 3** shows about fundamental statistical description with level of significance evaluation using Pearson Chi-Square Test. This was attempted in relation to each and every question of the questionnaire. Significant inferences were drawn for question no 2,3,6 and 7 respectively ($p < 0.05$ significant).

Table 1: Expressive Evaluation Of The Patients: Age & Gender Wise

Age Group (Yrs)	Male	Female	Total	Mean	SD	P value
30-40	23	11	34 [34 %]	3.54	2.072	0.01*
41-50	18	12	30 [30 %]	4.21	2.530	0.70
51-60	11	13	24 [24 %]	3.82	2.243	0.09
>60	8	4	12 [12 %]	2.23	1.760	0.10



Total	60	40	100	3.47	2.374	Significant
*p<0.05 significant						

Table 2: Questionnaire Used For The Study

Demographic Responses		
Name		
Age (Yrs = 30 to >60)		
Sex (M = 60/F = 40)		
Clinical Responses		Inferences
Question 1	Have you ever used RPD before ?	Yes = 31/No = 69
Question 2	Have you ever met existing RPD wearers and discussed with them about RPD?	Yes = 22/No = 78
Question 3	Do you know about the advantages of using RPD ?	Yes = 39/No = 61
Question 4	Do you think that RPD is the one and only option to replace missing teeth ?	Yes = 45/No = 55
Question 5	After explaining you about RPD, are you ready for this therapy ?	Yes = 61/No = 39
Question 6	Do you think that it is an excellent option for those who can't afford advanced treatment options like Implants, etc.?	Yes = 91/No = 9
Question 7	Do you think that RPDs have deleterious effect of remaining natural standing teeth ?	Yes = 62/No = 38
Question 8	Do you believe that patients usually experience pain while wearing RPD ?	Yes = 51/No = 49
*p<0.05 significant		

Graph 1: Distribution Of The Patients Among Various Age Groups

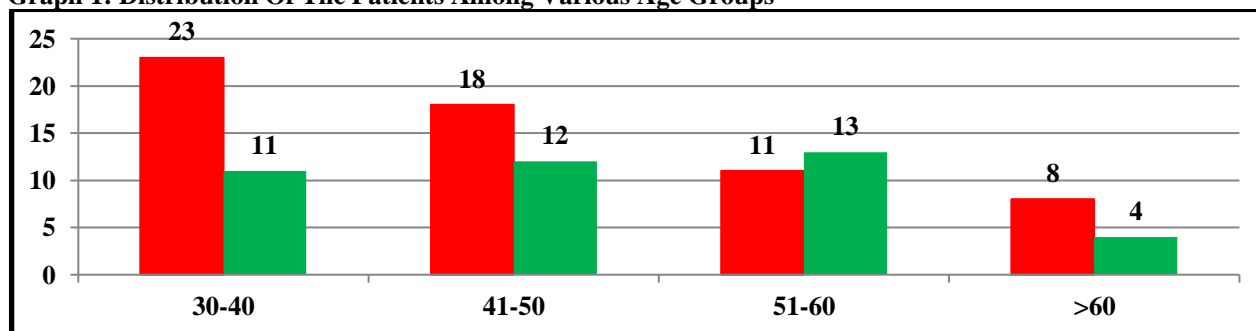


Table 3: Fundamental Statistical Description With Level Of Significance Evaluation Using Pearson Chi-Square Test

Question No.	Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	Level of Significance (p value)
1	2.32	0.234	0.150	1.96	2.445	1.0	0.080
2	2.45	0.256	0.030	1.96	2.267	2.0	0.020*
3	2.71	1.45	0.043	2.33	2.495	1.0	0.010*
4	2.34	0.456	0.033	1.96	1.523	1.0	0.070
5	2.57	0.246	0.021	1.96	2.556	3.0	0.080
6	1.43	0.347	0.055	1.96	2.432	1.0	0.005*
7	1.87	0.134	0.015	1.96	1.223	1.0	0.001*
8	2.73	0.344	0.032	2.33	1.245	1.0	0.384
*p<0.05 significant							



Discussion

Rehabilitation of patients with removable partial dentures (RPD) is a constant procedure and necessitates attention to the particular needs of the patients.⁹ Removable partial denture remains the primary form of dental rehabilitation in Indian population, because it is one of the economical treatment options for patients who can't afford implants therapy either due to anatomical or economic reasons.¹⁴⁻¹⁹ Consequently the RPDs are an acceptable type of treatment that offers an increased spectrum of restorative options: enhancing phonetics, improving masticatory effectiveness, stabilizing dental relationships and attaining the required aesthetics.²⁰⁻²⁵ RPDs is conservative implant tooth replacements because of their accessibility to lower socioeconomic groups in whom the highest rates of tooth loss occur. RPDs may be made with cast metal, acrylic resin with or without wrought metal component and acrylic resin with some cast units and those made with thermoplastic resin.²⁶⁻²⁹ The prevalence of use of the all-acrylic RPD among adults is very high as all-acrylic RPD is more affordable and easier to fabricate.³⁰⁻³⁵ However, some disadvantages of using the all-acrylic resin dentures are increased risk of developing caries, gingivitis and periodontal disease relative to other RPD frameworks. This study was a questionnaire based study which was outlined to assess the relative knowledge and satisfaction levels of 100 patients wearing RPD. Total 40 females and 60 male patients participated in the study. Most of the patients were only moderately aware about of RPD. Total 39 patients were aware about the advantages of using RPD. When evaluating the cost factors, the patients were very much satisfied with removable partial dentures. Total 91 patients think that it is an excellent option for those who can't afford advanced treatment options like Implants, etc. Our study results were in accordance with the inferences of several workers.³⁶⁻³⁹ Researchers have also shown that women and patients older than 50 years were more unaware about partial dentures than other patients.²⁴ According to other researchers. patients in urban regions were more aware about RPD as compared to rural provinces.²⁵ Some of them found no significant associations between patient awareness and age, or denture experience, which is in contrast with our study's results.²⁶ They also believe that the age was not a significant predictor of RPD awareness and knowledge.

Conclusion

Within the limitations of the study authors have concluded that level of knowledge and awareness about RPD was moderate in the studied population. However it could differ in other population groups especially in urban setups. Most of the studied patients were not

completely aware about RPD therapy. Therefore, awareness exercises and other measures must be conducted periodically so as to raise overall awareness and knowledge levels. Moreover, our study outcomes can be treated as suggestive for estimating clinical inferences for such situations. Nevertheless, we expect other large scale authentic studies to be conducted that may possibly further establish certain concrete norms in this perspective.

References

1. Jablonski RY, Hodson TM, Patel J. Removable partial dentures: Part 2. *Br Dent J.* 2024 Oct;237(8):615-620.
2. Awawdeh M, Alotaibi MB, Alharbi AH, Alnafisah SA, Alasiri TS, Alrashidi NI. A Systematic Review of Patient Satisfaction With Removable Partial Dentures (RPDs). *Cureus.* 2024 Jan 7;16(1):e51793.
3. Yacob N, Safii SH, Ahmad NA, Yunus N, Razak FA. Denture microbiome shift and changes of salivary inflammatory markers following insertion of 3D printed removable partial PMMA denture: a pilot study. *BMC Oral Health.* 2024 Oct 14;24(1):1216.
4. Binaljadm TM. Flexible Denture: A Literature Review. *Cureus.* 2024 Mar 3;16(3):e55425.
5. Kramer HM. Impression technique for removable partial dentures. *J Prosthet Dent* 1961;11:84-92.
6. Cotmore JM, Mingledorf EB, Pomerantz JM, Grasso JE. Removable partial denture survey: Clinical practice today. *J Prosthet Dent* 1983;49:321-7
7. Chen J, Ahmad R, Suenaga H, Li W, Sasaki K, Swain M, Li Q. Shape optimization for additive manufacturing of removable partial dentures. A new paradigm for prosthetic CAD/CAM. *PLoS One* 2015;10(7):22-7.
8. Kumar P, Rastogi J, Jain C, Singh HP. Prosthodontic management of worn dentition in pediatric patient with complete overlay dentures: a case report. *J Adv Prosthodont* 2012;4(4):239-42.
9. Kumar P, Singh S, Mishra SK. Stereomicroscopic evaluation of marginal fit of premachined and castable abutments at implant abutment connection interface- An in vitro study. *J Sci Soc* 2023;50:254-8.
10. Kumar P, Kumar P, Tiwari A, et al. A Cross-Sectional Assessment of Effects of Imprisonment Period on the Oral Health Status of Inmates in Ghaziabad, Delhi National Capital Region, India. *Cureus J Med Sci* 2022;14(7):1-7.
11. Kumar P, Goel R, Jain C, Kumar A, Parashar A, Gond AR. An overview of biomedical literature



- search on the World Wide Web in the third millennium. Oral Health Dent Manag 2012;11(2):83-9.
12. Reifel NM, Rana H, Marcus M. Consumer satisfaction. Adv Dent Res 1997;11(2):281-90.
 13. Douglass CW, Watson AJ. Future needs for fixed and removable partial dentures in the United States. J Prosthet Dent 2002;87:9-14.
 14. Hoad-Reddick G, Grant AA. Prosthetic status: the formation of a schedule. J Prosthet Dent 1988;59(1):105-10.
 15. Kern M, Wagner B. Periodontal findings in patients 10 years after insertion of removable partial dentures. J Oral Rehabil 2001;28(11):991-7.
 16. Yeung AL, Lo EC, Chow TW, Clark RK. Oral health status of patients 56 years after placement of cobalt-chromium removable partial dentures. J Oral Rehabil 2000;27(3):183-9.
 17. Holmes JB. Influence of impression procedures and occlusal loading on partial denture movement. J Prosthet Dent 2001;86:335-41.
 18. Gunne J, Högström J, Nilson H. Impression technique for RPDs. A comparison between two methods. Swedish Dent J 1990;14:225-31.
 19. Kumar P, Rastogi S, Kumar A, Goel R. Impact factor- the reputation gauge of the journals: An overview. Eur J Gen Dent 2012;1(2):121.
 20. Kumar P, Pacharne AP, Mishra SK. Evaluation of dimensional stability and surface hardness of interocclusal recording materials at various time intervals: An in vitro study. J Pharm Bioall Sci 2022;14:S222-4.
 21. Madihalli AU, Tavane PN, Yadav NS, Abraham S, Reddy PM, Baiju G. A comparative study of impression procedures for distal extension removable partial dentures. J Contemp Dent Pract 2011;12(5):333-8.
 22. Yusof Z, Isa Z. Periodontal status of teeth in contact with denture in removable partial denture wearers. J Oral Rehabil 1994;21(1):77-86.
 23. Lalla RV, Patton L, Dongari-Bagtzoglou A. Oral candidiasis: pathogenesis, clinical presentation, diagnosis and treatment strategies. J Calif Dent Assoc 2013;41(4):263-8.
 24. Milton Rocha Gusmão J, Pereira RP. Treatment protocol for denture stomatitis. Gerodontology 2013;30(3):232-5.
 25. Al-Huraishi H, Moran J, Jagger R, MacDonald E. Evaluation of stain removal and inhibition properties of eight denture cleansers: an *in vitro* study. Gerodontology 2013;30(1):10-7.
 26. Alam M, Jagger R, Vowles R, Moran J. Comparative stain removal properties of four commercially available denture cleaning products: an *in vitro* study. Int J Dent Hyg 2011;9(1):37-42.
 27. Kumar P, Dammani B, Mahajani M, et al. A Two-Year Follow-Up Assessment of Decreasing Crestal Bone Levels Around Dental Implants in Patients Rehabilitated With Mandibular Implant Overdentures. Cureus J Med Sci 2022;14(9):e29044.
 28. Kumar P, Khattar A, Goel R, Kumar A. Role of Botox in Efficient Muscle Relaxation and Treatment Outcome: An Overview. Ann Med Health Sci Res 2013;3(1):131.
 29. Kumar P, Fatima N, Ramesh G, et al. An In Vitro Assessment of Marginal Accuracies in Copings Fabricated With Two Dissimilar Alloys: An Original Research Study. Cureus J Med Sci 2022;14(8):1-5.
 30. McGivney GP, Carr AB. McCracken's removable partial prosthodontics. 10th ed. St. Louis, MO: 2000. pp. 19-23.
 31. Bharathi M, Babu KR, Reddy G, Gupta N, Misuriya A, Vinod V. Partial Edentulism based on Kennedys classification: an epidemiological study. J Contemp Dent Pract 2014;15(2):229-31.
 32. Frank RP, Milgrom P, Leroux BG, Hawkins NR. Treatment outcomes with mandibular removable partial dentures: a population-based study of patient satisfaction. J Prosthet Dent 1998;80(1):36-45.
 33. Academy of Prosthodontics Principles, concepts, and practices in Prosthodontics 1994. J Prosthet Dent 1995;73(1):73-94.
 34. Steffel VL. Planning removable partial dentures. J Prosthet Dent 1962;12:524-35.
 35. Dula LJ, Shala KS, Pustina-Krasniqi T, Bicaj T, Ahmedi EF. The influence of removable partial dentures on the periodontal health of abutment and non-abutment teeth. Eur J Dent 2015;9(3):382-6.
 36. Pellizzer EP, Ferrão R, Tonella BP, Oliveira BJ, Souza FL, Falcón-Antenucci RM. Influence of ridge type on mandibular distal extension removable partial denture. Acta Odontol Latinoam 2010;23(1):68-73.
 37. Jones JA, Orner MB, Spiro A, Kressin NR. Tooth loss and dentures: patients perspectives. Int Dent J 2003;53(5) Suppl.:327-34.
 38. Anderson JN, Lammie GA. A clinical survey of partial dentures. Br Dent J 1952;92:59-67.
 39. Graham R, Mihaylov S, Jepson N, Allen PF, Bond S. Determining need for a removable partial denture: a qualitative study of factors that influence dentist provision and patient use. Br Dent J 2006;200(3):155-8.