

Parent Satisfaction Related to Child's Post-Operative Pain Management

Edlin Glane Mathias

Manipal College of Nursing

Mamatha Shivananda Pai (✉ mathiasedlin28@gmail.com)

Manipal College of Nursing <https://orcid.org/0000-0001-9038-3014>

Vijay Kumar

Kasturba Medical College Manipal

Vasudeva Guddattu

Manipal Academy of Higher Education

Ann-Cathrine Bramhagen

Malmo University: Malmo Universitet

Research Article

Keywords: children, mother, pain, parent, satisfaction

Posted Date: October 20th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-988855/v1>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Surgery of a child is a stressful event for the parents and the family. Pain management is an important part of treatment among children undergoing surgical procedures. The aim of this study was to examine the parent satisfaction level related to child's post-operative pain management. The study included 160 mothers of children aged 2-7 years undergoing elective surgery. In the study the mothers were randomly allocated either to the intervention (n=80) or control group (n=80). The children in the intervention group received age-appropriate distraction interventions for three postoperative days along with the usual care. Children in the control group received only usual care. Data on parent satisfaction related to postoperative pain management interventions was assessed on the day of discharge using a Parent satisfaction scale. It was found that majority 68 (85%) of mothers in the intervention and 27 (33.7%) in the control group were "very satisfied" with pain management interventions. However, 12 (15%) mothers in the intervention and 53 (66.2%) were "moderate satisfied". The mean and standard deviation of parent satisfaction in the intervention group was 42 ± 5.237 and 34 ± 6.642 in the control group. Results from One-way ANOVA identified that there was a significant difference in the parent satisfaction between the intervention and control group ($p < 0.05$).

Conclusion: Nurses worldwide must engage parents in the management of their child's postoperative pain by clearly expressing their responsibilities and roles, as well as providing ample opportunities for parent's active participation in their child's postoperative pain management.

What Is Known?

- Surgery of a child is a stressful event for the parents and the family.
- In younger children effective pain management is an important component of treatment during postoperative period.
- Satisfaction with care is one way to assess the effectiveness of the current practice.

What is New?

- Parent satisfaction with age appropriate distraction interventions is a new concept
- Involvement of the parents in the child's postoperative pain management provides positive impact on the child's pain
- Assessing parent satisfaction is one method to evaluate the effectiveness of non-pharmacologic therapies

Introduction

Despite the fact that the number of studies on paediatric pain management has grown over time, children's postoperative pain treatment remains poor, indicating that further research is needed [1]. If postoperative pain is left untreated it delays postoperative recovery and also increases the demand for analgesics [2], increases the length of hospital stay and decreases immunity among children [3]. It is important to include parents in the pain management, as they have the ability to understand their child's behaviour and may make a significant contribution to their child's pain assessment and support the use of non-pharmacological pain management interventions [4]. If the parents are involved in the postoperative pain management they may help in managing child's pain which in turn also increases their satisfaction towards the interventions provided [5].

It is observed that most of the time there is a lack of involvement of parents in the postoperative care of a child [6]. Postoperative pain can be managed through a combination of pharmacological and non-pharmacological interventions which is identified as highly beneficial among children [7]. The non-pharmacological interventions can be either provided by a nurse or the mother [8]. Through the literature it is observed that there are lack of studies on assessment of parent satisfaction towards pain management interventions. Hence it is necessary to conduct a study to assess a parent satisfaction towards pain management interventions in a pediatric surgical unit.

Rationale For The Study

Hospitalization and pediatric surgery are stressful situations for children and their parents [9]. From the evidence, it is found that 64% of the children experience moderate to severe pain and 29% experience unbearable pain after surgery [10]. Because of parents pre-and postoperative anxiety, some of them find it impossible to support their children during post-surgical pain [11]. However, due to anxiety or stress parents of children having surgery respond to the unpleasant condition in a variety of ways [12].

Assessment of parent satisfaction in younger children is a reliable measure of identifying the effect of any treatment and evaluate the quality of care provided in the hospital setting [13]. Also, helps to evaluate the outcome and improve or balance the current practice [14]. There are few reports that have looked at how parents are satisfied with their children's medical treatment [15]. Some of the studies have concentrated on neonatal treatment [16, 17] while others have looked at emergency departments [18], inpatient wards [19], and outpatient care [20].

Very little research has looked into the parent satisfaction towards pain management interventions among children [21, 22]. There is evidence that increased medical care awareness and information contribute to increased parental trust, which in turn helps their child feel protected and comfortable [23]. Parental anxiety, on the other hand, may have the opposite effect, resulting in fearful and frightened patients [24]. There is also an association between parental fear and parent scores of care quality [25].

There is a limited literature that has looked at parent satisfaction level on pain management interventions in a pediatric surgical unit. Also, there are no any studies which assessed the parent satisfaction with distraction interventions provided by a nurse during post-operative care. Thus, by identifying the research

gap in the area the authors in this study aimed to examine the parent satisfaction level with pain management interventions delivered by a nurse researcher to the children during the postoperative period. The study findings will enable the nurses and the health care professionals to practice pain management interventions along with the pharmacological treatment during the postoperative period. It is important to educate parents on non-pharmacological pain management interventions through which they will be capable to relieve the stress of handling the children in the post-surgical period.

Materials And Methods

Study design

A Quantitative research approach was used in the study.

Participants and recruitment

This study was conducted between May 2019 to February 2021 in a tertiary care Hospital, Karnataka, India. The study participants included 160 mothers (80 interventions; 80 control) of children undergoing Elective surgery. Before starting the study, the ethical permission was obtained from the Institutional Research Committee. Mothers those who accompanied the child for three postoperative days were included in the study. The researcher explained the study to the mothers and informed consent and assent was obtained. The researcher randomly allocated the mothers and children to the intervention and control group. The children of the mothers in the intervention group received age- appropriate distraction interventions. The intervention was provided by the researcher and mothers accompanied the child during the intervention. Children in the post-operative unit were distracted with the help of distraction kit that included picture books, toys, role play cards, activity books and story books). The intervention was provided by the nurse for thirty minutes and the mother accompanied the child during the intervention. Along with the distraction interventions the child also received usual care (Pharmacological treatment). Children in the control group received only the usual care (Pharmacological treatment) for three postoperative days. On the day of discharge, the researcher administered the parent satisfaction scale to the mother of the intervention and control group to assess their satisfaction with pain management interventions.

Data collection measures

Mothers were present along with their children in the paediatric surgical unit for three post-surgical days. The 160 mothers were randomly allocated either to the intervention (80) or control group (80). The researcher was blinded on allocation of the mothers into the intervention and control group. After allocation, the researcher approached the mothers on the day of admission and explained the study process. Informed consent and assent was taken for participation in the study.

On the day of admission, the data on demographic characteristics of the mothers were obtained: age of mother, annual income, education, and occupation of the mother. Parent satisfaction was assessed on

the day of discharge using a Likert scale (Parent Satisfaction Scale) developed by the researcher for the study purpose. The scale consisted of 10 items rated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The Parent Satisfaction Scale has a minimum score of 20 and maximum score of 50. The interpretation of the tool is done on three categories: very satisfied (40-50), moderately satisfied (21-39), and not satisfied (10-20). Higher the scores indicate high level of satisfaction of mothers on pain management interventions. The tool was validated by the experts from the department of pediatric surgery, anaesthesiology, psychology and child health nursing. All the items were clear and no changes were made in the scale. The reliability of the tool was established by administering the tool to 20 mothers. This tool was found to be reliable ($r=0.87$). Hence, in the present study, this tool was administered among 160 mothers (80 intervention and 80 control). The average time taken by the mothers to complete the tool was 10-15 minutes. All the mothers in the study completed the parent satisfaction tool.

Data analysis

Data obtained from the mothers were coded using SPSS 23.0 version. Demographic characteristics were described by frequency and percentage. One-way ANOVA (Analysis of Variance) was calculated to identify the statistically significant difference between means. Chi-square was computed to find the association between parent satisfaction and demographic variables.

Results

Description of demographic variables

A total of 160 mothers of children undergoing elective surgery participated in the study. Forty-one mothers (51.2%) in the experimental and 34 (42.5%) in the control group were in the age of 29-33 years. The mean age of the mothers in the intervention was 30 and 31 in the control group. Most of the 52 (65%) parent's income in the intervention and 50 (62.5%) in the control group was more than 15000 Rs. It was observed that 32 (40%) of the mothers in the intervention and 35 (43.7%) in the control group were graduates in education (Table 1).

Parent satisfaction related to child's pain management interventions (N=160)

The data on parent satisfaction related to post-operative pain management interventions was collected among 160 mothers. On the day of discharge, the researcher approached the mothers and administered the parent satisfaction scale to rate their satisfaction with pain management interventions. The findings of the study revealed that majority 68 (85%) of mothers in the intervention and 27 (33.7%) in the control group were "very satisfied" with pain management interventions. However, 12 (15%) mothers in the intervention and 53 (66.2%) were "moderate satisfied". No, any mothers in the intervention group were rated under "not satisfied" towards pain management interventions. The mean and standard deviation of parent satisfaction with post-operative pain management interventions in the intervention group was mean 42 SD (5.23) and mean 34 (SD 6.64) in the control group. To compare the significant difference

between and within the groups One-way ANOVA was computed and it was found that there was a significant difference between the intervention and control group ($p < 0.05$). Further, the item-wise parent satisfaction was computed and most (58%) of the mothers in the intervention group reported that they will recommend a similar intervention for a child in the post-operative period. Also, the mothers in the intervention group were overall happy with the pain management intervention provided for their children. Most of the mothers revealed that pain management intervention helped to improve their child's post-surgical behaviour. Also, the mothers in the intervention group revealed that pain management interventions are useful for children after surgery (Table 2).

Association between parent satisfaction level and demographic variables (N=160)

To identify the association between parent satisfaction and demographic variables (age of mother, annual income, education, and occupation of the mother) the data from 160 mothers was analysed. Chi-square test was computed and it was observed that there is a significant difference between mother's satisfaction and age of the mother. ($\chi^2 = 8.107, p = .017$) (Table 3).

Discussion

The aim of the study was to examine the parent satisfaction related to child's post-operative pain management interventions. Our study findings showed that majority 68 (85%) of mothers in the intervention group were "very satisfied" with child's pain management interventions and 12 (15%) were moderately satisfied. This is because the children in the intervention group received distraction interventions combined with pharmacological treatment for three post-operative days. Also, the mothers in the intervention group were accompanied by the children during the intervention. A study by Chng et al (4) (2015) in Singapore identified that despite their children experiencing moderate postoperative pain, parents were generally satisfied with the postoperative care they received. Similarly, Matziou et al (26) (2011), Greece found that 88 (42.72%) parents were satisfied by pain treatment provided for their children. Another study by Bittman (27) (2004) identified that parents were overall satisfied with day care surgery. A previous research conducted by Twycross and Collis (28) (2012) reported that both children and their parents were satisfied with the children's pain management and postoperative care provided. There are few evidences listed above on parent satisfaction with pain management interventions but the findings differed to draw an appropriate conclusion. However, in the present study the reason for improved satisfaction of mothers in the intervention group was because of mother was allowed to be with the child in the postoperative period and was also able to make the child comfortable during distraction activities provided by a nurse. Children in the intervention group were easier to handle during postoperative pain as compared to the children in the control group.

Pain management through distraction is effective and easily available in low-resource hospital settings Ibitoye et al [29]. However, there is an evidence that have shown an association between the non-pharmacological interventions either provided by nurse or mother were effective among children and increased parent satisfaction Mu et al [30]. In our study it was identified that pain management

interventions provided by a nurse along with the mother were effective among children and also increased the parent satisfaction level. Also, we found that there was a significant association between parent satisfaction and mother's age. The reason could be due to experienced mothers were more comfortable in handling their child as compared to less experienced mother. Also, the children had undergone both minor and major surgeries in both the groups. An item-wise analysis of satisfaction level revealed that most 58% of the mothers in the intervention group reported that "they will recommend the same pain management intervention if planned for another surgery" and 56% of mothers revealed that "they were overall happy with pain management intervention given to children". The 56.1% of the mothers in the intervention group reported that "pain interventions made their child comfortable during the post-surgical period".

To our knowledge, there are studies on overall parent satisfaction but very limited studies are identified on parent satisfaction on pain management interventions provided by a nurse. The study findings emphasize on need to developing educational interventions for the parents on use of non-pharmacological strategies to improve postoperative pain among children. Health professionals also need to be educated on pediatric pain assessment and practice of distraction interventions along with the standard care. As this study included children undergoing both minor and major surgeries the satisfaction level of the parents might be varied which is a limitation of our study. However, to the author's knowledge, this is the first study where the parent satisfaction level is assessed on nurse-provided pain management interventions. The outcomes of the study encourage the nurses and health care professionals to implement age-appropriate pain management interventions for the children during the post-surgical period.

Limitation

In this study only parent satisfaction was assessed and no any child's satisfaction was separately assessed.

Conclusion

The study findings provide new information on parent's satisfaction related to child's postoperative pain management interventions. Nurses worldwide must involve mothers in the pain management through age appropriate distraction interventions for the children. Also, the mothers need to be educated on their responsibilities and roles in the child's pain treatment. Nurses in the pediatric surgical unit need to be trained on use of age-appropriate distraction interventions to relieve postoperative pain among the children.

Abbreviations

ANOVA: Analysis of Variance

Declarations

Funding: The authors did not receive support from any organization for the submitted work.

Conflicts of interest/Competing interests: The authors declare no competing interest

Availability of data and material: The data underlying this study will be shared upon reasonable request to the corresponding author

Code availability: N/A

Authors' contributions:

Study conception & design: Mrs Edlin Glane Mathias & Dr Mamatha Shivananda Pai

Analysis & data interpretation: Mrs Edlin Glane Mathias & Dr Vasudeva Guddattu

Drafting of the manuscript: Mrs Edlin Glane Mathias & Dr Mamatha Shivananda Pai

Revision of the manuscript: Mrs Edlin Glane Mathias, Dr Mamatha Shivananda Pai, Ann-Cathrine Bramhagen

Ethics approval: Ethical approval was taken from the Institutional Research Committee

Consent to participate: Written informed consent was taken from the parents

Consent for publication: N/A

References

1. Vejzovic V, Bozic J, Panova G, Babajic M, Bramhagen A-C (2020) Children still experience pain during hospital stay: a cross-sectional study from four countries in Europe. *BMC Pediatr.*20(1):39.
2. Williams G, Howard RF, Lioffi C (2017) Persistent postsurgical pain in children and young people: prediction, prevention, and management: Prediction, prevention, and management. *Pain Rep.* 2(5):e616.
3. Mekonnen ZA, Melesse DY, Kassahun HG, Flatie TD, Workie MM, Chekol WB (2021) Prevalence and contributing factors associated with postoperative pain in pediatric patients: A cross-sectional follow-up study. *Perioper Care Oper Room Manag.* 23(100159):100159.
4. Chng HY, He H-G, Chan SW-C, Liam JLW, Zhu L, Cheng KKF (2015) Parents' knowledge, attitudes, use of pain relief methods and satisfaction related to their children's postoperative pain management: a descriptive correlational study. *J Clin Nurs.* 24(11–12):1630–42.
5. Chorney JM, Twycross A, Mifflin K, Archibald K (2014) Can we improve parents' management of their children'S postoperative pain at home? *Pain Res Manag.* 19(4):e115–23.

6. Hoon LS, Hong-Gu H, Mackey S (2011) Parental involvement in their school-aged children's post-operative pain management in the hospital setting: a comprehensive systematic review. *JBI Database System Rev Implement Rep.* 9(28):1193–225.
7. Pillai Riddell RR, Racine NM, Turcotte K, Uman LS, Horton RE, Din Osmun L, et al (2011) Non-pharmacological management of infant and young child procedural pain. *Cochrane Database Syst Rev* (10):CD006275.
8. Thrane SE, Wanless S, Cohen SM, Danford CA (2016) The assessment and non-pharmacologic treatment of procedural pain from infancy to school age through a developmental lens: A synthesis of evidence with recommendations. *J Pediatr Nurs.* 31(1):e23-32.
9. Fronk E, Billick SB (2020) Pre-operative anxiety in pediatric surgery patients: Multiple case study analysis with literature review. *Psychiatr Q.* 91(4):1439–51.
10. Shave K, Ali S, Scott SD, Hartling L (2018) Procedural pain in children: a qualitative study of caregiver experiences and information needs. *BMC Pediatr.*18(1):324.
11. David Vainberg L, Vardi A, Jacoby R (2019) The experiences of parents of children undergoing surgery for congenital heart defects: A holistic model of care. *Front Psychol.*10:2666.
12. Hagiwara S-I, Nakayama Y, Tagawa M, Arai K, Ishige T, Murakoshi T, et al (2015) Pediatric patient and parental anxiety and impressions related to initial gastrointestinal endoscopy: A Japanese multicenter questionnaire study. *Scientifica (Cairo).* 2015:797564.
13. Kim CE, Shin J-S, Lee J, Lee YJ, Kim M-R, Choi A, et al (2017) Quality of medical service, patient satisfaction and loyalty with a focus on interpersonal-based medical service encounters and treatment effectiveness: a cross-sectional multicenter study of complementary and alternative medicine (CAM) hospitals. *BMC Complement Altern Med.*17(1):174.
14. Cosma SA, Bota M, Fleşeriu C, Morgovan C, Văleanu M, Cosma D (2020) Measuring patients' perception and satisfaction with the Romanian healthcare system. *Sustainability.*12(4):1612.
15. Kaur M, Charan GS, Selvi T (2019) Parents' satisfaction concerning their children's care at tertiary hospital. *AMEI's Current Trends in Diagnosis & Treatment.*3(1):18–22.
16. Hagen IH, Iversen VC, Nettet E, Orner R, Svindseth MF (2019) Parental satisfaction with neonatal intensive care units: a quantitative cross-sectional study. *BMC Health Serv Res.*19(1):37.
17. Balasundaram M, Porter M, Miller S, Sivakumar D, Fleming A, McCallie K (2021) Increasing parent satisfaction with discharge planning: An improvement project using technology in a level 3 NICU: An improvement project using technology in a level 3 NICU. *Adv Neonatal Care [Internet].* Publish Ahead of Print. Available from: <http://dx.doi.org/10.1097/ANC.0000000000000841>
18. Paul RI (2010) American academy of pediatrics, section on emergency medicine, scientific abstract presentations, AAP national conference and exhibition October 1, 2010 - San Francisco, CA. *Pediatr Emerg Care.* 26(9):697–707.
19. Tsironi S, Koulierakis G (2019) Factors affecting parents' satisfaction with pediatric wards: Parental satisfaction with hospital care. *Jpn J Nurs Sci.*16(2):212–20.

20. Bitzer EM, Volkmer S, Petrucci M, Weissenrieder N, Dierks M-L (2012) Patient satisfaction in pediatric outpatient settings from the parents' perspective - the Child ZAP: a psychometrically validated standardized questionnaire. *BMC Health Serv Res.*12(1):347.
21. Gill M, Drendel AL, Weisman SJ (2013) Parent satisfaction with acute pediatric pain treatment at home. *Clin J Pain.* 29(1):64–9.
22. Foster RL, Varni JW (2002) Measuring the quality of children's postoperative pain management: initial validation of the child/parent Total Quality Pain Management (TQPM) instruments. *J Pain Symptom Manage.* 23(3):201–10.
23. Chabot B, Ferland CE (2020) Inpatient postoperative undesirable side effects of analgesics management: a pediatric patients and parental perspective. *Pain Rep.* 5(5):e845.
24. Aranha P, Sams L, Saldanha P (2016) Impact of preoperative education program on parental anxiety: A pilot project. *Arch Med Health Sci.* 4(1):30.
25. Wilson AC, Lewandowski AS, Palermo TM (2011) Fear-avoidance beliefs and parental responses to pain in adolescents with chronic pain. *Pain Res Manag.*16(3):178–82.
26. Matziou V, Boutopoulou B, Chrysostomou A, Vlachioti E, Mantziou T, Petsios K (2011) Parents' satisfaction concerning their child's hospital care: Parental satisfaction with hospital care. *Jpn J Nurs Sci.* 8(2):163–73.
27. Bittmann S (2004) Parent satisfaction with paediatric day-surgery: a questionnaire-based study. *Ambul Surg.* 2004;11(1–2):3–5.
28. Twycross A, Finley GA (2013) Children's and parents' perceptions of postoperative pain management: a mixed methods study. *J Clin Nurs.* 22(21–22):3095–108.
29. Ibitoye BM, Oyewale TM, Olubiyi KS, Onasoga OA (2019) The use of distraction as a pain management technique among nurses in a North-central city in Nigeria. *Int j Afr nurs sci.*11(100158):100158.
30. Mu P-F, Chen. Y-C, Cheng S-C (2009) The effectiveness of non-pharmacological pain management in relieving chronic pain for children and adolescents. *JBI Libr Syst Rev.*7(34):1489–543.

Tables

Table 1 Description of Sample Characteristics

N=160

Variables	Intervention group (n=80)		Control group (n=80)		Total	
	f	%	f	%	f	%
Age of mother in years						
24-28	20	25	20	25	40	50
29-33	41	51.2	34	42.5	75	46.8
34-38	19	23.8	26	32.5	45	28.2
Income in Rs						
5000-10000	10	12.5	3	3.75	13	8.1
10001-15000	18	22.5	27	33.75	45	28.1
>15000	52	65	50	62.5	102	63.8
Education of Mother						
Primary	12	15	10	12.5	22	13.8
Secondary	34	42.5	34	42.6	68	42.6
Graduate	32	40	35	43.7	67	41.8
Postgraduate	2	2.5	1	1.2	3	1.8
Occupation of Mother						
House wife	47	58.7	50	62.6	97	60.6
Coolie worker	23	28.7	21	26.2	44	27.5
Others	10	12.5	9	11.2	19	11.8

Others: teacher, tailor, working in general stores

Table 2 Item wise parent satisfaction level with pain management interventions in both the groups

N=160

Items based on the mean	Intervention group			Control group		
	Mean	SD	%	Mean	SD	%
I was informed regarding my child's pain after surgery	4.12	0.700	52.2	3.78	0.693	47.8
The pain intervention took away most of my child's pain after surgery	4.09	0.508	54.7	3.39	1.000	45.3
Pain interventions made my child comfortable during post-surgical period	4.04	0.702	56.1	3.16	1.012	43.9
I was more secure in handling my child during the surgical pain	4.18	0.546	54.8	3.44	1.017	45.2
Pain intervention helped to improve child's post-surgical behaviour	4.16	0.605	54.5	3.48	0.900	45.5
I managed my child's pain through guidance	4.12	0.682	53.7	3.56	0.898	46.3
The pain intervention changed my thoughts and feelings regarding surgical pain	4.06	0.663	53.2	3.58	0.868	46.8
Pain management interventions are useful to children after surgery	4.14	0.347	53.6	3.59	0.867	46.4
If my child needs to have another surgery I will recommend the same pain management intervention	4.10	0.686	58	2.98	1.091	42
I am overall happy with the pain management intervention given to my child	3.99	0.646	56	3.14	1.064	44

Table 3 Association between parent satisfaction and demographic variables

The association between parent satisfaction and demographic variables was computed using the Chi-square test. It was found that no mothers were under the "not satisfied" category. Hence for the association, only 2 categories were recoded (moderately satisfied and very satisfied).

N=160

Variables	Intervention group		Control group		χ^2 / fisher exact value	df	P-value
	Moderately satisfied	Very satisfied	Moderately satisfied	Very satisfied			
Age of mother in years							
24-28	8	30	28	16	8.107	2	0.017*
29-33	22	17	27	9			
34-38	2	1	0	0			
Income							
5000-10000	6	4	3	0	7.015	2	0.143
10001-15000	8	10	15	12			
>15000	18	34	37	13			
Mother's education							
Primary	7	9	5	5	6.729	2	0.151
Secondary	12	19	30	4			
Graduate	13	20	20	16			
Mother's occupation							
Housewife	15	32	33	17	2.129	2	0.345
Coolie worker	12	11	18	3			
Others	5	5	4	5			

Table 4 Effect of pain management interventions on parent satisfaction

N=160

Satisfaction score	t value	Mean difference	df	p value
	8.037	7.600	158	<0.05

Note. "t"- Independent t test; df= Degree of Freedom; p=Level of Significance

Figures

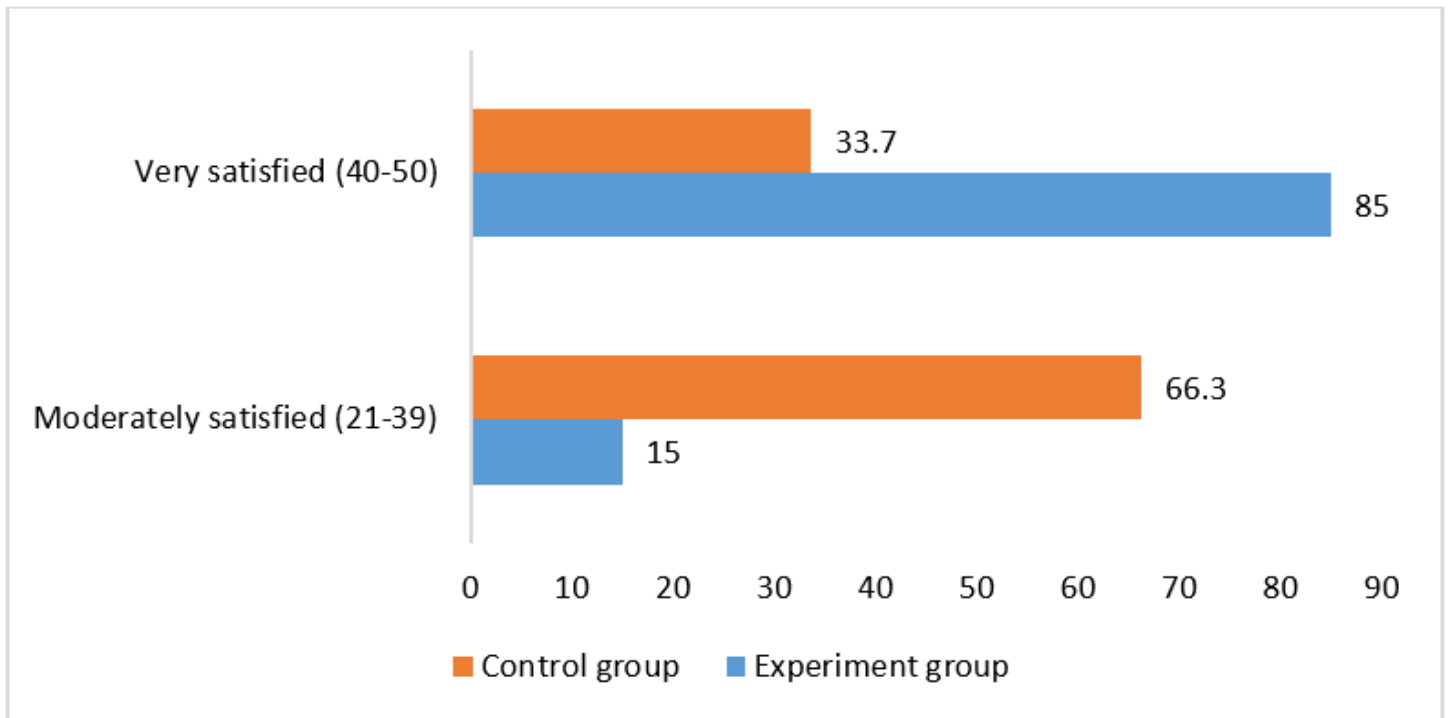


Figure 1

Bar diagram showing parent satisfaction level categories on discharge