4-23-2019

Changing Healthcare Provider and Parent Behaviors in the Pediatric Post-Anesthesia-Care-Unit to Reduce Child Pain: Nurse and Parent Training in Postoperative Stress (NP-TIPS)

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Article category: Research report

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What is already known: Child postoperative pain is a significant problem and non-pharmacological interventions to reduce this pain are needed.

What this article adds: This empirically-based behavioral intervention is feasible in modifying nurse and parent behavior when caring for children after surgery in a way that reduces child postoperative pain.

Key words: adult behaviors; behavioral intervention; efficacy testing; formative evaluation; intervention development; recovery room; child pain

Abstract

Background: Children who undergo surgery experience significant pain in the post anesthesia care unit. Nurse and parent behaviors in the post anesthesia care unit directly impact child postoperative pain. Therefore, we have developed and evaluated (Phase 1) and then tested (Phase 2) the feasibility of a new intervention (Nurse and Parent Training in Postoperative Stress) to alter parent and nurse behaviors in a way consistent with reducing child postoperative pain.

Methods: In Phase 1, a multidisciplinary team of experts (physicians, nurses, and psychologists) developed an empirically-based intervention which was then evaluated by experienced nurses (N = 8) and parents (N = 9) during focus groups. After revising the intervention based on focus group feedback, it was tested in Phase 2 using a pre-post study design. Nurses (N = 23) who worked in the recovery room were recruited to be part of both pre- and post-intervention data collection periods. Parents were recruited to be part of either the pre- (N = 52) or post-intervention (N = 60) data collection periods. Nurses and parent-child dyads were recorded in the post anesthesia care unit and videos were coded for the desired (i.e., behaviors that may decrease child pain) and non-desired (i.e., behaviors that may increase child pain) behaviors. Pain data was collected from the children's medical records to assess pain after surgery. The intervention was given to the nurses and parents in the post-intervention data collection period.

Results: Nurses significantly increased their rate of desired behaviors by 231% (p = 0.001; Somer's D = 1) and significantly decreased their rate of non-desired behaviors by 62% (p = 0.004, Somer's D = -0.88, 95% CI [-1.74, -0.03]). Parents significantly increased their rate of desired behaviors by 124% (p = 0.033). Moreover, the intervention significantly decreased child pain in the post anesthesia care unit (b = -2.19, SE = 0.63, z = -3.46, p = .001, 95%CI [-3.43, -0.95]).

Conclusions: The intervention was effective in changing nurse and parent behaviors as well as child pain after surgery.

Introduction

Over 85% of children who undergo surgery every year experience significant pain in the post anesthesia care unit (PACU)[1–3]. Postoperative pain continues to be prevalent when children return home, with up to 70% of children and parents reporting immediate postoperative pain and up to 28% continuing to experience pain one week following surgery[4]. This is of high clinical significance, as pain can result in a multitude of negative consequences; children in pain require increased analgesic consumption, experience delayed recovery from surgery[3], and often suffer from maladaptive behavioral changes including decreases in socialization, healthy eating habits, and sleep[3]. Therefore, it is necessary to identify ways to manage this pain. Pain management techniques can be multimodal and include both pharmacological and non-pharmacological strategies.

Adult behaviors are a particularly important non-pharmacological component in the treatment of children's postoperative pain in the PACU[5]. Specifically, previous work by our research group has demonstrated that nurse and parent verbal and nonverbal behaviors in the PACU influence children's postoperative pain[6]. For example, verbal distraction (e.g., humor, talking about pets) and nonverbal distraction (e.g., playing games, watching TV) used by adults tends to decrease child pain by diverting the child's attention away from their pain[7]. Coping statements (e.g., instructions to engage in coping behavior, "If you take your medicine, you'll feel better") help direct children to engage in behaviors that will help decrease their pain[8]. In contrast, behaviors like reassurance (e.g., "It's going to be okay"), empathy (e.g., "I know it's hard"), and apology (e.g., "I'm sorry") often elicit child pain because they focus the child on his or her feelings of pain without presenting a method for alleviating that pain[8].

Therefore, altering nurse and parent behavior in the PACU setting may provide a unique non-pharmacological method for minimizing child pain after surgery. However, interventions designed to impact these adult-child behavioral interactions in the postoperative setting have yet to be developed. Previously, we developed and validated a behavioral intervention directed at anesthesiologists and nurses to reduce the stress of children during the anesthesia induction process[9]. As a next step in this line of research, we focus on the behavior of adults in the PACU. We have decided to focus on the PACU behaviors of parents and nurses because the involvement of anesthesiologists and surgeons with children during that time period is highly limited.

Previous research demonstrates that although healthcare providers are sympathetic to changing their behavior, modification of behavior can be challenging[10]. Therefore, any behavioral intervention directed at healthcare providers must be tested for its ability to change the provider behavior[9]. In this report, we first present the development and formative evaluation (Phase 1) of an empirically-based behavioral intervention (Nurse and Parent Training in Postoperative Stress [NP-TIPS]) to change the behavior of nurses and parents in the PACU to impact the multidimensional stressor of pain. Second, we present the results of the efficacy of the intervention (Phase 2) in changing nurse and parent behaviors and subsequently child pain.

Methods

Phase 1: Development and formative evaluation of NP-TIPS

Intervention development. As a first step, we established a multidisciplinary task force to design NP-TIPS. This task force included advanced practice clinical and research nurses, pediatric psychologists, and pediatric anesthesiologists. The task force met regularly during the development of NP-TIPS, discussed components needed, and created material for the nurse and parent modules.

Identification of target behaviors. The multidisciplinary task force first identified target behaviors to increase or decrease. Target behaviors for the intervention were identified based on literature described above[5–7] as well as a previous study conducted by our group in the PACU[8]. This study video recorded and coded the behaviors of 146 children and their parents and health care providers. Sequential analysis demonstrated that children were significantly less likely to become distressed when an adult used distraction and coping advice. Furthermore, children were more likely to remain distressed when adults used empathy and reassurance. Therefore, the desired behaviors included distraction and coping advice[8,11–16] (see Table 1) and non-desired behaviors included empathy, reassurance, and apology[8,17–19].

NP-TIPS overview. After selecting the target behaviors, the task force designed the training program. Based on previous models of behavior change in other healthcare settings[9], we used a train-the-trainer model whereby nurses would learn the target behaviors from the research team but then also teach the parents the behaviors in the PACU. Given the limited time to interact with parents in the busy surgical environment as a research team, we implemented a model of teaching nurses to train parents during their routine interactions with families for efficiency. In addition, we created a web module for parents with detailed information about desired and non-desired behaviors, with specific examples to reinforce the nurse training and for parents to access when needed after surgery.

Nurse training component of NP-TIPS. The nurse-training component of NP-TIPS was comprised of a group training seminar and individual follow-up coaching and feedback (all led by a psychologist). The group training seminar consisted of a 1-hour session which included an introduction to the theoretical basis of NP-TIPS and video examples from actual child-nurse interactions which highlight desired behaviors and non-desired behaviors. Discussion focused on the rationale of the behaviors and

how to incorporate them in the clinical setting as well as the strengths/weaknesses of the video demonstrations. Dyadic role-play activities amongst the nurses and with the training seminar coach were used to allow for further group discussion. Role-plays allowed nurses to practice using desired behaviors and eliminating non-desired behaviors while receiving in vivo feedback from the trainer. The nurse training seminar also instructed nurses on how to teach parents to increase desired and minimize non-desired behaviors using information provision, video examples, and role-play opportunities with in vivo feedback provided.

Following the training seminar, each nurse had one-on-one training sessions with a psychologist to ensure that material taught in the group seminar was mastered. These individual sessions were held in the PACU and were incorporated into the clinical flow of these nurses. Nurses were observed interacting with parents and children during their PACU postoperative period and feedback was given following each child and parent contact at the first time of availability (i.e., when the nurse was not involved in clinical care of the child). This sequence of training was repeated until individual nurses achieved 'mastery' level criteria. Mastery criteria was defined as consistently (with at least 2 patients) using desired behaviors 80% of the time during patient interaction in the PACU and describing thoroughly the desired and non-desired behaviors to parents. This one-on-one feedback took in total about 30 minutes per nurse spread across multiple feedback sessions.

Parent component of NP-TIPS. The first parent component of NP-TIPS included learning the target behaviors from an interactive multi-media web module that contained educational text, a video example, and a printer friendly informational page. The educational text described the desired and non-desired behaviors. This web module allowed parents to also learn individually at their own pace in the hospital waiting room. Once parents entered the PACU, nurses incorporated instruction about the behaviors to parents, which included asking parents to engage in distraction and coping advice and to avoid apology, empathy, and reassurance with their children. Nurses provided parents with a rationale for the behaviors, such as associations with child distress, and gave examples of how to use the target behaviors with children. Nurses prompted parents about the behaviors throughout the PACU stay. In total, this training took less than 5 minutes of the nurses' time.

Formative evaluation. To evaluate NP-TIPS, focus groups with a trained focus group interviewer (a health psychologist) and two to five nurse or parent participants (nurse and parent focus groups were led separately) were conducted. Following informed consent, the interviewer presented the NP-TIPS training program/web module to participants. Participants were asked open-ended questions and then completed quantitative measures to evaluate NP-TIPS. The mixed methods approach using qualitative focus groups allowed exploration of various perspectives. Each focus group was approximately 2 hours. An open-ended interview format included querying "What did you like best about this intervention/web module?" and "What did you like least about this intervention/web module?" was used. All procedures were approved by our institution's ethics committee.

Nurses were asked for qualitative impressions of the intervention as a whole (nurse training and parent web module). Nurses also completed a number of survey questions by indicating their level of agreement (1 - *disagree* to 10 - *agree*) to statements regarding NP-TIPS *acceptability* (e.g., "I would feel comfortable teaching these behaviors to parents in the PACU"), *feasibility* (e.g., "the material in the presentation will be effective in demonstrating the desired and non-desired behaviors to nurses"), and *perceived utility* (e.g., "the presentation will be effective in helping nurses incorporate new behaviors into their interactions with children").

Parents were asked for qualitative impressions of only the parent web module portion of NP-TIPS. Parents also completed a number of survey questions indicating their level of agreement (1 - *disagree* to 10 - *agree*) to statements regarding NP-TIPS *acceptability* ("the website does a good job showing the behaviors"), *feasibility* ("the website will help parents use new behaviors with their children"), and *perceived utility* ("this intervention will decrease child pain and anxiety in the hospital").

Phase 2 Preliminary Efficacy Testing

Procedures. Phase 2 was a pre-post design in which baseline data were first collected (in the pre-intervention data collection period) followed by post-intervention data collection (see Figure 1). Parent-child dyads were recruited on the day of surgery and asked to participate in a study during their stay. Parents participated in either the pre- or post-data collection period depending upon which phase the study was currently in when they were recruited. Nurses who worked in the PACU at the Children's Hospital of Orange County (CHOC) were recruited to be part of both pre- and post-intervention data

collection periods. Nurses received the NP-TIPS nurse group training seminar and received individual coaching and feedback once the pre-intervention data collection period was complete but before the post-intervention data collection period began. Parents in the post-intervention data collection group received the parent web module in the waiting room and training from the nurses in the PACU (both described in Phase 1). Nurses, parents, and children were video recorded in the PACU during both pre- and post-intervention data collection periods so that the desired and non-desired behaviors as well as the quality of the nurses educating the parents could be assessed. All procedures in phase 2 were approved by our institution's ethics committee.

Behavioral frequency measure. Target behaviors were coded by first selecting three five-minute segments from each participant's video in the PACU. The three segments selected were when the child woke up (started when the child opened his or her eyes and then continued for five minutes), when the child was distressed (started two minutes before the child was distressed and continued for three minutes after the onset of distress), and when the intravenous access was removed (started two minutes before the intravenous access was removed and continued for three minutes after removal). These three scenes were selected because they are common occurrences in the PACU stay. Each five-minute segment was then rated by one of two trained coders (inter rater reliability on 10% of the data = 0.80). Raters used a modified version of the Child-Adult Medical Procedure Interaction Scale-PACU (CAMPIS-PACU)[20,21] which includes behavior ratings for the desired and non-desired behaviors targeted in NP-TIPS.

Quality of nurse teaching parents the target behaviors. Scoring of the quality of the description of the target behaviors the nurses gave to the parents was based on a 13-point scale. Nurses received 1 point for each of the five target behaviors they defined, one point for each rationale they provided for each of the five target behaviors, one point for soliciting questions from the parents, and up to two points based on their overall quality in communication with the parents (0 = low quality, 1 = moderate quality, and 2 = high quality).

PACU pain data. To assess child pain in the PACU, pain data from the children's medical records were abstracted. This pain data was from the Faces Legs Activity Cry and Consolability Scale (FLACC)[22]. The FLACC has six indicators of pain: face, legs, activity, cry, and consolability each rated on

a scale from 0 to 2. For example, the face item is rated based on the child's facial expression (0 = no particular expression or smile; 1 = occasional grimace or frown, withdrawn, disinterested; 2 = frequent to constant frown, clenched jaw, quivering chin). All items are summed together to create a score ranging from 0 to 10. The FLACC is commonly used to measure postoperative pain in pediatric populations[23]. With the exception of one outlier assessment, FLACC data was reported in the children's medical record on average every 10.80 minutes (SD = 6.00) for the pre-intervention group and 10.20 minutes (SD = 7.49) for the post-intervention group. There were no significant differences on these assessment intervals between the two groups, b = 0.51, SE = 1.28, z 0.40, p = .691, 95%CI [-2.00, 3.01], regardless of outlier presence.

Statistical analysis. Means and standard deviations were calculated for the PACU nurse quality of teaching measure. The rates of adult desired and non-desired behaviors per minute were compared between pre- and post-intervention for both the nurses and parents. Behavior change for the nurses was assessed using the non-parametric Wilcoxon signed-rank test. Behavior change for the parents was assessed using the non-parametric independent samples Mann-Whitney U test. Non-parametric tests were used due to the positively skewed distribution of behavior rates. Standardized effect sizes of Cohen's d and percentage change were calculated to demonstrate the overall size of the effect of the intervention on behavior change. A multilevel negative binomial model was used to examine the trajectory of pain data across PACU stay. Pain data throughout PACU stay was a level 1 variable while participant and condition were level 2 variables of analysis.

Power analysis. A power analysis revealed that 21 nurses would be sufficient to detect a medium to large effect size (d = 0.65) with statistical power to evaluate nurse behavior change at the recommended 0.80 level with an alpha of 0.05. A power analysis also revealed that 60 parents would be sufficient to detect a medium to large effect size (d = 0.65) with statistical power to evaluate parent behavior change at the recommended 0.80 level with an alpha of 0.05. The size of the effect was expected based on the effect sizes found in a previous behavior change study in the hospital setting published in Anesthesiology by our group[9].

Results

Phase 1: Development and Formative Evaluation of NP-TIPS

Participants. For the nurse focus groups, we recruited eight PACU nurses from the University of California, Irvine Medical Center to participate (see Table 2 for demographics). Additionally, nine parents of children who had undergone surgery at CHOC were recruited to participate in focus groups (see Table 2 for demographics).

Qualitative feedback from formative evaluation. Nurses suggested that NP-TIPS be provided to parents during surgery as opposed to at home after surgery. Therefore, we adjusted the NP-TIPS protocol to provide the parent web module of NP-TIPS on iPads to parents in the waiting room. Based on the responses of the nurses and parents about the parent web module being too long, the length of the parent web module was shortened.

Quantitative feedback from formative evaluation. All quantitative ratings of NP-TIPS's *acceptability* (nurses: $M = 9.33$, $SD = 0.96$; parents: $M = 8.04$, $SD = 1.17$), *feasibility* (nurses: $M = 9.29$, $SD = 0.99$; parents: $M = 8.78$, $SD = 0.94$), and *perceived usefulness* (nurses: $M = 8.74$, $SD = 1.34$; parents: $M = 8.56$, $SD = 1.16$) were high suggesting that the nurses and parents had favorable attitudes towards the intervention.

Phase II: Phase 2 Preliminary Efficacy Testing

Participants. Nurses were approached in the PACU at CHOC and were asked to participate in a study of adult behaviors in the PACU. Twenty-three PACU nurses took part in Phase 2. Nurses had 14.63 years ($SD = 9.55$) of experience nursing (see Table 3). All nurses had college degrees in nursing and regularly saw pediatric patients in the PACU.

One hundred and twelve parent-child dyads under the care of the study nurses participated in Phase 2 ($N = 52$ in pre-intervention; $N = 60$ in post-intervention). Children were on average 6.19 years old ($SD = 2.77$) and underwent various surgery types (see Table 3). All nurses and parent-child dyads provided informed consent (or assent in the case of children 7 and older).

Nurse quality of teaching. During the intervention phase, nurses received an average of 10.07 points ($SD = 3.17$; out of a possible 13) on the PACU nurse quality of teaching measure suggesting that

nurses explained and provided rationales for most of the behaviors and did so with high quality when they taught the parents more about the behaviors.

Behavior change. Nurses statistically significantly increased their rate of desired behaviors by 231% (z = 3.233, p = 0.001, Somer's D = 1) and decreased their rate of non-desired behaviors by 62% (z = 2.888, p = 0.004, Somer's D = -0.88, 95% CI [-1.74, -0.03]; see Table 4). Parents statistically significantly increased their rate of desired behaviors by 124% (p = 0.033; see Table 4). Although parents did decrease their rate of non-desired behaviors by 26%, this change was not statistically significant (p = 0.494).

***Pain*.** Children in the intervention condition had significantly less pain as compared to those children in the pre-intervention condition (b = -2.19, SE = 0.63, z = -3.46, p = .001, 95%CI [-3.43, -0.95]; see Figure 2). There was also a main effect of time such that children experienced more pain at the beginning of the PACU stay (b = -0.30, SE = 0.04, z = -8.15, p < .001, 95%CI [-0.37, -0.23]). Finally, there was a significant interaction between condition and time (b = 0.31, SE = 0.09, z = 3.65, p < .001, 95%CI [0.15, 0.48]) such that children in the post-intervention condition had low pain throughout their PACU stay while children in the pre-intervention group had higher pain during the beginning of their PACU stay (see Figure 2).

Discussion

In this manuscript, we report the successful development, evaluation, and testing of an innovative postoperative intervention, NP-TIPS. This empirically-based intervention was directed at parent and nurse behaviors and subsequently child pain in the PACU. We have shown that the intervention was effective in significantly increasing desired and decreasing non-desired behaviors of nurses and parents in the PACU at levels that are clinically meaningful. Further, NP-TIPS results in lower child pain in the PACU especially at the beginning of the PACU stay when pain levels tend to be higher.

Despite the availability of pharmacological agents, a high proportion of children experience significant distress in the PACU[1–3]. Therefore, development and testing of effective behavioral interventions is highly important so that pain can be managed from a multimodal approach. Ideally, stages in such an endeavor should include an empirically based development process, followed by an effectiveness demonstration of the behaviors of healthcare providers and parents, and finally testing of whether the intervention reduces child pain. In this manuscript, we have completed each of these steps in the development and testing of NP-TIPS.

In the efficacy testing portion of this study, NP-TIPS effectively reduced child pain in the recovery room. This reduction in pain was likely due to the successful increase of desired behaviors and decrease of non-desired behaviors of nurses and parents in the PACU. For example, in a pre-post design, nurses increased their desired behaviors by over 200% while decreasing their non-desired behaviors by 62%. Similarly, parents increased their desired behaviors by over 100% and decreased their non-desired behaviors by 26%. Although, the decrease in parent non-desired behaviors was not statistically significant, there may have been a floor effect whereby parents were already demonstrating low rates of non-desired behaviors and thus had little room for improvement. However, the decrease seen was still clinically relevant as it approached almost a 30% change.

Limitations of this study should be noted. For example, the participants were not blind to which condition they were in as parents in the intervention condition received the web module and nurse training and nurses knew when the intervention phase of the study began. This may have influenced the behavior of the parents and nurses. Also, being videotaped could have made them be more cognizant of their behavior change. However, these limitations were unavoidable due to the nature of the study. Also, the

research assistants coding the videos were not blind to the condition (pre- vs. post-intervention data collection period) because the nurses described the target behaviors to the parents. This was also a necessary component of the study given that raters needed to rate the quality of how the nurses trained the parents. Although the nurses assessed pain of the children, the chance of bias was limited with the use of the highly structured FLACC and clinical training in FLACC use.

An additional limitation is that we have only tested this intervention among English speaking participants. This intervention will need to be translated for use in non-English speaking families and made culturally appropriate where necessary. Further, parents with higher levels of education may comprehend the material easier. However, we did use simple sentences in the web module at a Flesch-Kincaid assessed reading level of grade 7 so that even those parents without a high school degree could digest the material. We also used engaging pictures, videos, and colors to aid in capturing the attention of the users regardless of education status.

This train-the-trainer approach taken in NP-TIPS whereby nurse behavior is targeted is cost effective and works logically as nurses interact with a large number of parents in the PACU. Further, this training takes relatively little time to implement as the nurse training took in total 1.5 hours and the parent training (web module plus PACU instruction from nurses) took less than 40 minutes. Training nurses (as well as using web modules) may improve the field drastically because this has the potential to impact large numbers of children and parents who nurses care for. However, it will be necessary to assess behavior maintenance to uncover whether booster sessions are required. It will also be fruitful to determine how to best maintain this behavior change over long periods of time. In conclusion, NP-TIPS is effective at changing adult behavior and subsequently child pain in the PACU.

Disclosures

Source of Funding: We would like to thank the Eunice Kennedy Shriver National Institute of Child Health and Human Development (HD085712) and the University of California Irvine Newkirk Foundation for their generous support of this research

Conflicts of Interest: No conflicts of interest declared.

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Figure 1. NP-TIPS Pre- and Post-Intervention Data Collection and Intervention Implementation.

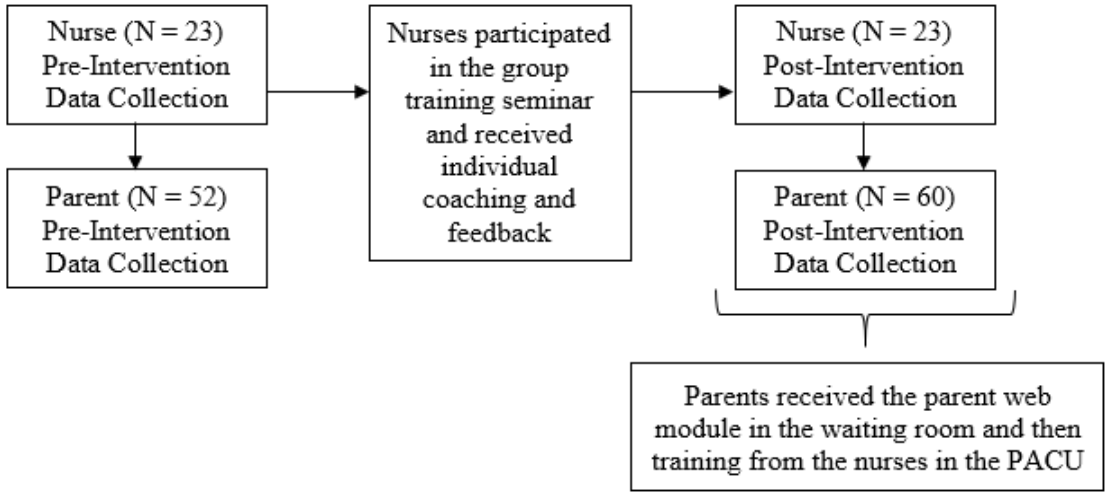

Figure 2. FLACC Scores over PACU Stay for Pre- and Post-Intervention Data Collection. Data points represent predicted values. Error bars are the 95% confidence intervals around the predictions.

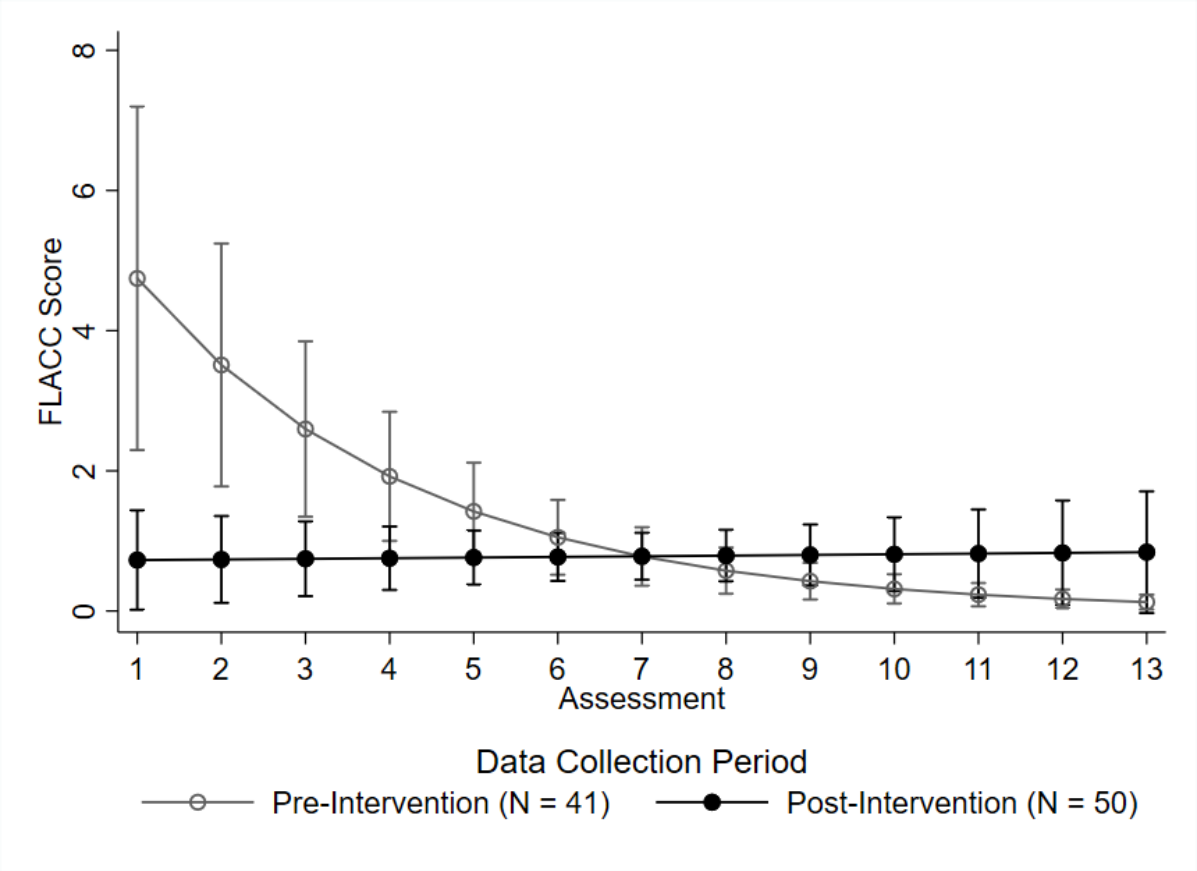

Table 1. Desired and Non-Desired Behaviors Definitions

	Behavior	Definition
Desired	Distraction	Nonprocedural Talk: Distracting comments that steer children's attention away from the medical environment. Any conversation or statements pertaining to activities outside the surgery center (e.g., talk about friends, unobserved toys, favorite movies, favorite games, their pets, school). Distracting with talk rather than directing attention toward an object such as a toy. Verbal engage in distraction: Comments that direct attention toward or refer to objects of distraction (e.g., talking about the TV show, books, or toys that are present). Humor: Jokes that help to change the focus of the children's attention away from the medical procedure. Jokes, laughing, or tickling the child with the intention of improving the child's mood. Facetious, exaggerated, or sarcastic comments (if not accompanied by harsh voice). Nonverbal Distraction: Adult is engaged with the child in activities that can distract the child from their situation (e.g., watching TV, reading books, playing games).
	Coping Advice	Talk about or instructions given to engage the child in coping behavior (other than distraction). This is instructions to do a behavior that helps manage distress, discomfort, or pain. Also includes assurance comments that make tangible suggestions that the child's state will improve "if" they do a stated behavior.
Non-desired	Apology	Any statement to the child relating a sense of sorrow or a sense of responsibility for the procedure.
	Empathy	Statements that express understanding of or identification with their feelings. Empathic statements such as "I know it's hard" serve to focus the child on his or her feelings or distress.
	Reassurance	Any statement that seeks to improve the child's emotional state. A comment to the child with the intent of comforting the child about his/her condition.

Table 2. Focus Group Nurse and Parent Demographics

Nurse Data (N = 8)	
Years in Nursing, M (SD; range)	27 (10.80; 11-40 years)
Years in the PACU, M (SD; range)	17.86 (8.15; 7-30 years)
Sex	
Female N (%)	6 (75%)
Male N (%)	2 (25%)
Education	
Bachelor of Science in Nursing	100%
Race/Ethnicity	
White	29%
Asian	71%
Parent Data (N = 9)	
Age, M (SD; range)	39.89 (11.54; 29-60 years)
Education, M (SD; range)	15.11 (2.47; 12-20+ years)
Sex	
Female N (%)	7 (78%)
Male N (%)	2 (22%)
Race/Ethnicity	
Hispanic	49%
White	33%
Asian	11%
Native Hawaiian/Pacific Islander	11%

Table 3. NP-TIPS Efficacy Testing Nurse and Child Demographics

Nurse Data (N = 23)		
Years in Nursing, M (SD; range)	14.63 (9.55; 1.5-34 years)	
Years in the PACU, M (SD; range)	3.51 (1.56; 0.67-6.5 years)	
Sex		
Female	93%	
Male	7%	
Education		
Bachelor of Science in Nursing	69%	
Associate Degree in Nursing/Science of Nursing	31%	
Race/Ethnicity		
White	75%	
Hispanic	18%	
Asian	7%	
How many children they see in the PACU		
Eleven or more per week	81%	
Three to ten per week	19%	
Child Data	Pre-Intervention (N = 52)	Post-Intervention (N = 60)
Age, M (SD; Range)	5.62 (2.77; 2-13 years)	5.95 (2.72; 2-11 years)
Sex		
Male	53%	63%
Female	47%	37%
Race/Ethnicity*		
Hispanic	47%	46%
White	26%	24%

Other or mixed race/ethnicity	26%	29%
Induction Type		
Mask	71%	68%
Intravenous	29%	32%
Received Sedative Premedication	94%	90%
Type of Surgery*		
General	23%	20%
Urology	17%	32%
ENT (ear, nose, throat)	17%	18%
Other	42%	30%

*May not add to 100% due to rounding.

Table 4. Effectiveness of NP-TIPS

Desired Behaviors		Mean	Effect Size	% Change
Nurses	Pre	0.45	1.50	231%
	Post	1.49		
Parents	Pre	0.50	.61	124%
	Post	1.12		
Non-desired Behaviors		Mean	Effect Size	% Change
Nurses	Pre	0.39	1.19	-62%
	Post	0.15		
Parents	Pre	0.19	.19	-26%
	Post	0.14		

Note. All data are presented as behaviors per minute. Effect size is Cohen's d.