

# Commentary: The Role of Memory in Managing Children's Distress During Medical Procedures

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One of the most universal experiences in childhood is the need to undergo medical procedures. Whether they be vaccinations, diagnostic, or treatment procedures, many children find invasive medical procedures to be distressing. Thus for pediatric psychologists, there is a pressing need to learn more about how to reduce children's distress during medical procedures.

Salmon et al. have taken on this topic in investigating the effects of two different psychological interventions on children's distress and memory during a voiding cysto-urethrogram (VCUG). The investigators tested the efficacy of providing distraction (a cartoon video) on top of standard care (limited procedural information), as well as the efficacy of providing complete information about the procedure plus the cartoon video compared with standard care alone in a sample of 2½- to 7½-year olds.

This study advances the field in that it compels researchers to move beyond using only distraction techniques as interventions for procedure-related distress. Although distraction is a useful technique that has received much support in its efficacy (Cohen, Blount, & Panopoulos, 1997; Cohen, Blount, Cohen, Schaen, & Zaff, 1999; Dahlquist, Pendley, Landthrip, Jones, & Steuber, 2002; Gershon, Zimand, Pickering, Rothbaum, & Hodges, 2004; Manne, Bakeman, Jacobsen, Gorfinkle, & Redd, 1994), the Salmon study addresses the question of whether adding components to a distraction intervention may improve an intervention's effects.

This study also moves the field forward by raising theoretical questions about how interventions work to reduce procedure-related distress. The authors propose that providing labels for equipment and engaging in procedural talk helps reduce an incomplete understanding

about the medical procedure and, as a result, may improve memory for the event and reduce distress over the event. By drawing on developmental theories about how memories for social events are formed (Nelson & Fivush, 2004), Salmon et al. are able to pinpoint meaningful pathways to target for intervention and then test the efficacy of manipulating these pathways for reducing children's procedure-related distress.

Salmon et al. demonstrate that the complete information plus distraction condition produced less behavioral distress during the VCUG, better recall of the VCUG 1 week later, and lower ratings of how painful the VCUG was 1 week later compared with children in the standard care condition. Interestingly, children who received distraction on top of standard care did not show differences in distress, recall, or pain ratings compared with those in the standard care condition. These findings reveal that providing children with comprehensive procedural information both improves memory and reduces distress. In addition, these findings suggest that the addition of detailed information about the VCUG procedure may have allowed children to better understand the procedure and to experience it as more predictable; thus perhaps improved memory contributed to reductions in distress, consistent with findings from other memory-based intervention approaches (Chen, Zeltzer, Craske, & Katz, 1999, 2000).

This study is important for documenting that there are ways to improve upon the effects of distraction, particularly for a lengthy procedure such as a VCUG. In addition, this study provokes additional thoughts about pathways for future studies to target. First, the results of this study raise the question of whether complete information alone could

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improve memory and reduce distress. This condition was not included in the study, and given that distraction appeared no better than standard care during a VCUg, it is possible that the effective ingredient of the complete information plus distraction condition lies primarily within the information component. This question needs to be tested in future studies using the VCUg or similar paradigms as a model.

Second, the results of this study differ from other studies in that Salmon et al. did not find distraction plus standard care to be any better than standard care alone for reducing children's procedure-related distress. This raises the question as to whether the characteristics of different types of medical procedures might make certain interventions better for one type of procedure and different interventions better for other procedures. For example, perhaps distraction works better for shorter procedures, whereas detailed information works better for longer procedures. Future studies should compare interventions across different types of medical procedures to better address this question.

Third, Salmon et al. proposed that complete information helps reduce inadequate comprehension about the medical procedure. Although this certainly makes sense for the young age group that was tested, it also raises the question as to whether older children and adolescents, who may have a better understanding of procedures they are undergoing, would benefit as much from a complete information condition. If this intervention operates through improving comprehension, one might expect the effects to be weaker among adolescents, who may be more likely to seek out information before undergoing the procedure. Thus future studies should test whether age moderates the effects of the types of interventions used in this study, and if so, then more research is needed to better understand what types of interventions are optimal for specific age groups.

Finally, there is an intriguing literature to suggest that children have their own preferences for coping with medical procedures (Rudolph, Dennig, & Weisz, 1995; Weisz, McCabe, & Dennig, 1994). Some children prefer to attend to procedures, while others prefer to distract themselves from what is happening during the procedure. Previous research has shown that matching an intervention to a child's preferred coping strategy maximizes the efficacy of that intervention (Fanurik, Zeltzer, Roberts, & Blount, 1993). During a laboratory pain task, when provided with a distraction intervention, children who preferred to distract reported less

pain than children who preferred to attend. Among those children provided with an attending intervention, children who preferred to attend reported less pain than children who preferred to distract themselves. In the Salmon study, the investigators tested a combination of a distraction intervention (cartoon video) and an attending intervention (procedural information). Although the complete information plus distraction condition was most efficacious, it would be interesting to examine whether there were individual differences in how children responded to the intervention. Did children who preferred to attend respond best to the complete information condition? Did children who preferred to distract respond equally well to the complete information plus distraction condition as to the partial information plus distraction condition? Future studies should address questions such as these to better understand whether tailoring intervention approaches to children's preferences can increase the efficacy of these interventions.

The Salmon et al. study moves the field in a positive direction in understanding the role of memory in children's distress during medical procedures. However, more research is needed to optimize children's responses to psychosocial pain interventions and to minimize the distress that children experience during invasive medical procedures.

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