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# Managing Discomfort and Involving Participation in non-Emergency MRI: The Coping Strategies of Children During a First Procedure

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## Background

For some adults, being inside the MRI scanner's bore can be associated with 'lying as for cremation'<sup>[1,2]</sup> and also engender a feeling of being 'buried alive'<sup>[2]</sup>. The greatest levels of anxiety are reported to emerge among patients undergoing first time and non-trauma examinations, where no prior referent can be drawn upon and extensive time to deliberate is freely available.<sup>[3]</sup> Extant research further demonstrates that uncomfortable or stressful experiences of a medical imaging procedure during childhood can result in negative stances towards pertinent examinations in later life.<sup>[4]</sup> It is important to consider the unique concerns that may emerge during MRI work conducted upon pediatric patients. Children are not just 'small adults'; examinations of children require not only understanding of normal variations in anatomy and pediatric pathologies, but also a particular awareness of their cognitions, comprehension and communicative capacities.<sup>[5]</sup> It is therefore important that clinicians (a) develop an ability to understand the child's experience during imaging in order to (b) provide high quality care and develop meaningful interactions that might improve the context of the examination for all involved.

## Method

With full ethical approval, the study was carried out at a single University Hospital in Western Norway. Grounded Theory (henceforth GT) was adopted as the core investigative approach.<sup>[6]</sup> An opportunity sample of N=22 children was recruited, age range = 8 to 16 years, and undergoing a non-emergency MRI brain examination for the first time. The gender split was an even n=11. Semi-structured interviews (mean = 15 minutes) were conducted the children and their parents immediately subsequent to the completion of the procedure itself. Observational field notes were also compiled regarding the activity of children and parents before, during and after the examination. All interviews were transcribed verbatim and translated into English at the point of transcription. All data were incorporatively analyzed using the methods of GT in order to identify key concepts arising from participants' own MRI-related experiences, and the manner in which they make sense of these concepts.<sup>[6,7]</sup>

## Findings

The central concern of the participating children ultimately related to handling the prospective and extant 'discomfort' of their first MRI examination in psychological, sensory and more conventionally physical terms. This was variously expressed in terms of uncertainty/anxiety about what would happen, the handling of restricted space, noise and strong light, and also the demands associated with lying perfectly still and, in some cases, managing nausea. These forms of discomfort were negotiated by the children in an overall process herein termed Involving Participation, which had three chronological phases.

### Participation Preparation

- Preparative activities prior to the child's arrival in the Department itself,
- Usually collaboratively achieved with parents.
- Discussion of hospital-produced materials.
- Reference to familiar (comforting) narratives.

### Enabling Participation

- Activities undertaken upon arrival in the Department.
- Collaboratively achieved with radiographers and usually parents.
- Humanising staff, encouraging familiarity with light/noise.
- Offering active choices around distraction methods (empowerment).

### Sustaining Participation

- Activities embraced during the MRI examination itself.
- Collaboratively achieved with radiographers and sometimes parents.
- Distraction (films, music).
- Adult feedback on opportunities to move between scan sequences, breathing techniques, and handling nausea.

## Discussion/Conclusions

When the Involving Participation process was successful, the child generally reported a sense of growth and even joy at having 'mastered' the MRI context. The importance of patients actively participating in their own healthcare settings is a common theme in contemporary literature relating to both adults and children.<sup>[8]</sup> While the human right to be a participant is often seen a fundamental one for children, they are recurrently not informed of this right, nor significantly involved in discussions about their care.<sup>[9,10]</sup> Given the large, and growing, body of evidence relating not least to the anxiety-allaying impacts of pediatric participation emerging within general medical science, it is perhaps surprising that more attention has not been accorded to it within radiological research fields, and particularly those pertaining to MRI.<sup>[11]</sup> After all, it is well-documented that the noise of the MRI scanner, narrow space and lying still can be acute sources of anxiety, and anxious children have characteristically problematic consequences for the success of MRI examinations.<sup>[12,13]</sup> This study has aimed to illustrate how a child's practical investment in becoming a full and cooperative participant in an MRI procedure is not simply an output of discrete events, nor something that can be managed through one-size-fits-all reasoning, but is rather an ongoing interactive process over three interlinked social contexts, involving the active cooperation of a range of significant others.

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